# The Iron

A Review of the Hardware, Iron and Metal Trades.

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Although it is a fact generally accepted by constructors of steam engines, that economy and efficiency are well served by high pressures and quick speeds, it will be found that designers of air compressors still adhere to long strokes and slow speeds, not often going beyond a piston speed of 150 feet per minute. The difficulty encountered in the realization of the advantages offered by following the example of steam engine builders, has been the fitful and irregular action of inlet valves, generally operated by the vacuum produced by the receding piston some time after the stroke has begun. High speeds, it would seem, are impossible unless the operation of the inlet valves is independent of vacuum. A second cause of diffi-

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speeds, it would seem, are impossible unless the operation of the inlet valves is independent of vacuum. A second cause of difficulty has been the generation of heat by the friction of the air passing through delivery passages inadequate in section, independent of that due to compression, which, of course, must remain constant for any degree of compression. To insure steadiness the moving parts must, of course, be carefully balanced. The points of which we have just spoken have been specially kept in view in designing Sturgeon's high-speed compressor, which is built by the well-known Philadelphia firm, I. P. Morris Company, Port Richmond Iron Works. In the accompanying illustrations, Fig. 1 shows a side elevation, and Fig. 2 a plan, of an air compressor, with steam and air cylinders 10½ inches in diameter and 12-inch stroke. The air cylinder a is attached to one side of the hollow hed The air cylinder a is attached to one side of the hollow bed, to one side of the hollow bed, or receiver b, and is worked by means of the steam engine c, bolted to the other side of the same bed or receiver, through the crank shaft d, carrying a fly-wheel, e, at each end. To these fly-wheels the crank pins f f are attached at right angles to each other, so that the piston of the steam engine (driving) may be in the middle of its stroke and the best point of its power when the piston of the air engine (driven) is approaching the end of its stroke, where it meets the greatest resistance from the

greatest resistance from the compression of the air. The valve boxes of the air The valve boxes of the air cylinder are shown at g g; they serve also the purpose of the covers at each end of the air cylinder, and are bolted direct to the receiver b, without the intervention of pipers. out the intervention of piping, the communication being thus rendered direct from the air cylinder to the receiver. The inlet valves are shown at hh, in the center of the cylinder covers or valve boxes, the bosses of the valves fitting round the piston rod and containing the stuffing boxes. A stop, i, is placed on the outside of the boss of each valve, so as to limit its opening to the required extent. An enlarged view of the valves is shown by Fig. 3, page 3. By reason ing, the communication be by Fig. 3, page 3. By reason of the frictional hold of the stuffing box valve upon the piston rod, it is drawn to and fro by the motion of the latter to the extent allowed by the stop. Thus, as the piston begins to recede, the rod immediately carries the valve with it until its progress is checked by the stop, it being then full open, and the rod continuing its move ment through the valve, holds the

closed, in the same manner. As this move-ment takes place when the crank is almost on its center, and the motion of the rod at its slowest, the valve is brought to its seating gently and without any violent concus-

The delivery valves are shown at j, and consist of a number of small valves distrib-uted over the surface of the cylinder cover present an opening as nearly as possible approaching the form of the vena contracta, and to reduce the friction of the air in passing through. They can easily be removed when required, for cleaning or repairs, without disturbing any fast joints.

Sturgeon's High-Speed Air Compressor.

Although it is a fact generally accepted by constructors of steam engines, that economy and efficiency are well served by high pressures and quick speeds, it will be found that designers of air compressors still adhere to long strokes and slow speeds, not often going beyond a piston speed of 150 feet per minute. The difficulty encountered in the realization of the advantages offered by following the example of steam engine builders, has been the fifth and irregular action of the engine is brought to a standstill.

Brown of the engine is provided to the valve center, so that content of the lever n is stroke of the valve as the center of the lever n rises, thereby reducing the speed of the engine, and lengthening the stroke of the valve as the center of the lever n rises, thereby reducing the speed of the engine, and lengthening the stroke of the valve as the center of the lever n rises, thereby reducing the speed of the engine, and lengthening the stroke of the valve as the center of the lever n rises, thereby reducing the speed of the engine is provided to the valve as the center of the lever n rises, thereby reducing the speed of the engine, and lengthening the stroke of the valve as the center of the lever n rises, thereby reducing the speed of the engine, and lengthening the stroke of the valve as the center of the lever n rises, thereby reducing moters; weight of cartridge, 35.65 millimeters; length of cartridge, 35.65 millimeters, weight of cartridge, 35.65 millimeters, region of cartridge, 35.65 millimeters, region of cartridge, 35.65 millimeters, region of ball, 24 grams; charge of prowder, 4.25 grams; the weight of the arm, without the bayonet, is about 9 lbs.

Laws Relating to Commercial Travelers' minute, and the engine is brought to a standstill.

Laws Relating to Commercial Travelers' minute, and the engine is brought to a standstill.

The following digest of the laws of difference of the lever n rise, thereby reducing the speed of the engine is the wise, the p the engine. When the center of the lever n comes opposite the pin r of the lever s, the movement of the latter is entirely stopped, and the engine is brought to a standstill. By means of the weight n which can be fixed in any position along the rod m, the regulator may be set so as to take effect at any required pressure. This enables the machine to vary its speed automatically, to suit the varying demands for the supply of air to the air-driven engines, according as the latter may be stopped or started.

The New Swedish Naval Arm.—A new rifle has recently been adopted for the Nor-

The following digest of the laws of different States, relating to the licensing of commercial travelers, was made for the Northwestern Commercial Traveler. It is complete with the exception of Delaware, Rhode Island, Tennessee, Texas and Colorado:

The following named States have no statute requiring non-resident commercial travelers to hold special licenses; Alabama, California, Connecticut, Flordia, Georgia, Illinois, Iowa, Kansas; Kentucky, Maryland, Massachusetts, Maine, Minnesota,

Michigan, chap. 22, secs. 15 and 17.)

Nebraska.—There is a statute in the State of Nebraska requiring non-resident commercial travelers to take out special licenses, but it is claimed to be unconstitutional and void. "Its construction and effect is now a matter of litigation." (H. H. Wheeler, Sec-

retary of State.)

Nevada.—The laws of Nevada require the payment of from \$10 to \$20 per month in each county for license to sell by samples,

person who shall travel from place to place on foot, by horse and wagon, or by team, within this State, for the purpose of selling within this State, for the purpose of selling or offering for sale, at retail or to consumers, any goods, \* \* whether by sample or otherwise, and whether said goods \* \* \* are delivered at the time of sale or to be delivered at some future day, is hereby required to take out a license, in accordance with the existing laws of this State relating to hawkers and peddlers." (Chapter 269 of the Wisconsin Laws of 1878.) "The sum required of commercial travelers is \$25." (H. Kleinpell, Treasury Agent.) In addition to that there may be village and town licenses, when they have been authorized by charters of the towns, &c.

Austin and Galveston, Tex.; Denver, Col.;

Austin and Galveston, Tex.; Denver, Col.; Little Rock, Ark., and St. Louis, Mo., have no city ordinance requiring non-resident commercial travelers to take out special

Memphis.—There is an ordinance in the city of Memphis, Tenn., imposing "special license tax on commercial travelers, but this has been decided against this has been decided against by the courts, and they are now licensed under the gen-eral head of merchants at the rate of \$25 per annum." (C. Belcher, City Registrar of Memphis.) Savannah.—Savannah, Ga.,

has an ordinance requiring "every drummer, runner, or other person soliciting trade or orders, or business for amother or for himself, whether resident in the city or elsewhere, and having no fixed place of business in this city, "\* and every transient person selling or offering to sell by sample, shall pay the same tax required of resident and stationary dealers in the same article, without reference to the time of year when the business is commenced; and no such itimerant dealers shall be allowed to sell his wares under the license of any auctioneer, or under the name of any factor or commission merchant who has paid his tax as such, until he himself shall have paid all taxes required by this ordinance." (Section 6, page 11, Revonue Ordinances of Savannah. Ga., for 1878.)

San Francisco.—There is an ordinance in the city of San Francisco, Cal., requiring commercial travellers to take out special licenses, "but it has been declared unconstitutional by the courts." (John A. Russell, City Clerk of San Francisco, Cal.)

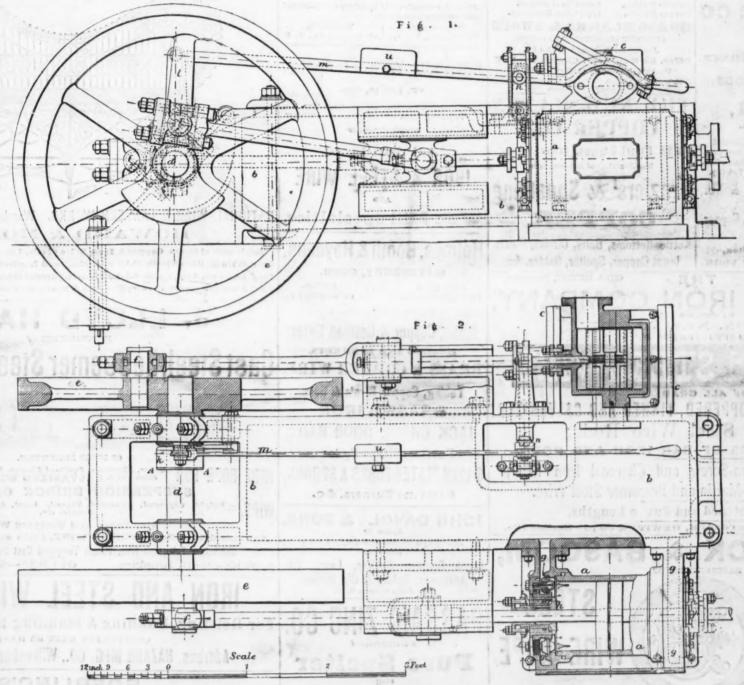
Washington City, D. C., has an ordinance declaring that commercial agents shall pay \$200 annually. "Every person whose business it is, as agent, to off er for sale goods, wares, or merchandise by sample, catalogue, or otherwise, shall be regarded as a commercial agent." This clause takes effect April 1, and, if paid thereafter, an amount is payable proportional to the unexpired portion of the unexpired portion of the unexpired portion of the unexpired portions of the unexpired portions of the very Rehear P.

Dodge, Treasurer of D. C.)

American Wheat in Spain.—According to a dispatch received at the Department of State from the American Consul at Barcelona, the first cargo of American wheat ever received in that city arrived about the middle of November. Great interest was excited in Barcelona thereby.

North Carolina.—The statutes of North resisting and interested that "every person acting a drummer in his own behalf, or as agent or any other person, who shall sell, or atom to fine the day of arrival, and it was immediately recognized as equal to Black Sea and Hungarian wheat. The cargo consisted empt to sell goods, wares, or merchandise, ot of his own manufacture, or any spiritions, vinous, or malt liquors, with or without samples, except agricultural implements, resisting and sold at 19 frances per 55 kilograms, or about \$3.70 per 120 pounds. This first cargo was brought to Barcelona in an English steamer. The freight upon the same amounted to \$18,000, and the same steamer was again chartered and the same steamer was again chartered to bring another cargo of wheat from New York. The consul knew of one firm which had engaged three English steamers to bring three cargoes of American wheat to Barcelona, and it was thought that about 25 cargoes would arrive during the season, all in English steamers. The consul reiterates former opinions upon the great necessity of direct American steam communication with Spain and other countries bordering on the Mediterranean.

> The Birmingham Wire Gauge.—At a meeting of the Glasgow Chamber of Commerce, held recently, a report was submitted with reference to the desirability of establishing the control of the co ted with reterence to the descrability of es-tablishing a uniform wire gauge. In the report it was suggested that the Chamber should concur with the Birmingham Cham-ber, in asking Parliament to supplement the Weights and Measures Act, 1878, by a clause instituting a legal standard to be recognized as a wire gauge.



STURGEON'S HIGH-SPEED AIR COMPRESSOR

through the valve, noise the latter fully open to the end of the stroke. On the commencement of the return stroke, the valve wegian Marine, named after its joint invenis immediately pushed up to its seating and tors, Kragg-Pettersson, M. Kragg being a liquid partial of the artillery, and M. Pettersson, in the artillery, and M. Pettersson, in the artillery, and M. Pettersson. wegian Marine, named after its joint inven-tors, Kragg-Pettersson, M. Kragg being a lieutenant in the artillery, and M. Petters-son a Swedish engineer. According to a description in the Miktar Wochenblatt, this arm may be classed among repeating rifles, from the ordinary form of which, however, it differs in the fact that the successive cart ridges are not placed in position automati cally, but require a particular action on the part of the operator. The magazine or or valve box, and affording a large area of outlet opposite the direction of movement of the piston, thereby avoiding the cross currents of air, and the generation of frictional heat previously alluded to. The inner surfaces of the valves are rounded off, so as to opening as nearly as possible an order to relead the run from the reserve cartpart of the operator. The magazine or reservoir is placed in the stock below the order to reload the gun from the reserve cart-ridges, the movable breech is opened and brought down in such a manner as to open and come in line with the after end of the when required, for cleaning or repairs, without disturbing any fast joints.

To actuate the valve of the steam engine
the eccentric k, acting through the lever and
rol lm, imparts a to-and-fro motion to the
lever n from its center o, which is raised or
lowered in the guides p, according as the
pressure of air in the receiver, acting
against the plunger q, increases or diminspecial special sp

Mississippi, Missouri, New Jersey, New York, New Hampahire, Ohio, Oregon, South Carolina, Vermont, West Virginia. In Cali-fornia, Connecticut, Florida, Georgia, Min-nesota and Pennsylvania, each incorporated city may require them by passing ordinances to that effect.

Indiana.—The statutes of Indiana provide that "traveling merchants " " who are not residents of this State" shall pay from \$3 to \$50, according to the amount of capital used. The license is required for vending foreign merchandise only. Tea and coffee excepted. (Davis' Revision Statutes of Indiana, vol. i., page 617. Act of 1852,

sec. I.)

Louisiana,—The statutes of Louisiana provide "that there shall be levied and collected an annual amount, as a license or tax," "from every non-resident sample merchant, agent, salesman, or employee of any foreign mercantile house or manufactory, who sells or contracts for the sale of merchantics agent, spirits, wines, liquors,

Now South Carolina.—The statutes of North Carolina provide that "every person acting as a drummer in his own behalf, or as agent for any other person, who shall sell, or attempt to sell goods, wares, or merchandise, not of his own manufacture, or any spirituous, vinous, or malt liquors, with or without samples, except agricultural implements, &c., shall, before soliciting orders or making any such sale, obtain a license to sell for one year from the public treasurer, an annual tax of \$50, but shall not be liable." (Revenue Act of North Carolina, sec. 24. Approved March 10, 1877.)

Pennsylvania regarding commercial travelers, except one prohibiting the sale of liquors.

liquors.

liquors.

Virginia.—The statutes of Virginia provide that "the specific license tax for the privilege of selling by sample, card, description or other representation, shall be \$100."

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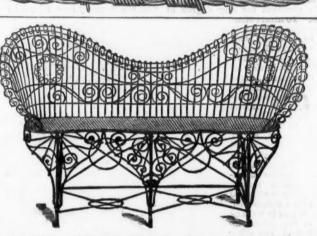
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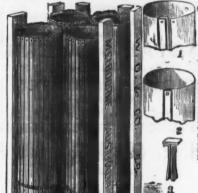
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Conservatism in Trade

To the Editor of the Iron Age: It is frequently asserted that "we know too much now, have too many facilities for the transfer of goods, too rapid means of communi-cation, and other unnecessary and hurtful innovations, which unsettle business and keep the dealer in constant anxiety and alarm."

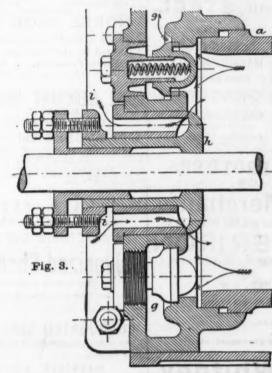
Such assertions do not require argument, and only serve to show the conservative ideas of those who are living, or would like to live, behind the age. They prefer the good old times, when a foreign invoice was a hundred days or more in reaching its destination, and when business was confined to little learn properties. little local monopolies. They do not seem to have learned as yet that existing facilito have learned as yet that existing facilities stimulate competition, which is the life of trade; that competition develops the character, the energy and the independence of the people, and by bringing to our doors a profusion of foreign products, supplies us with the means of increased comfort, knowledge and esthetic taste.

There is enerther short-sighted converge

There is another short-sighted, conserva-tive element, constantly assigning a single and immediate cause for each existing conand immediate cause for each existing condition of trade, unable to appreciate that, in a complicated system of civilization, simultaneous causes act and react upon each other, until it is impossible to fix upon any individual cause as responsible for a final effect. We were recently informed that the memory of some, lathe shears were "the sole and only cause of the present depression was the introduction of machinery into every branch of labor—machinery, were superior to those of old, owing to hand processes being replaced by machine work. But is the work any the worse done? Within the memory of some, lathe shears were chipped and filed, as were the teeth of wheels, &c. Does any one suppose they into every branch of labor—machinery, of the present, though the man with the which neither eats, nor wears clothing, yet of the present, though the man with the throws out of employment a flesh and blood equivalent that would do so, if possessed of ity unnecessary to the man who controls the

Again, war draws into the field a multi-tude of producers, who immediately become only consumers and destroyers, giving an unnatural stimulus to production of every kind; prices rise, money (especially paper) is plenty, the manufacturer at home becomes wealthy, and is satisfied with existing condi-tions, as are his workmen. But the war closes, the ravager and destroyer returns to his home and seeks employment, consump-tion assumes its natural proportions, and the increased number of producers, with the aid of improved machinery, make an apparent increased number of producers, with the aid of improved machinery, make an apparent glut in the market; but the cause was the war, not the machinery, and there is in reality no overstock, while there are thousands of hungry consumers, half clothed and forlorn, in every city and township. The trouble lies elsewhere. If it were not for the existence of such deplorable and unnatural institutions as war, speculation, intemperance, and the like, we should ride easily and smoothly over such minor disturbances as the occasional introduction of machinery in our shops. Every machine that lightens our shops. Every machine that lightens the mere drudgery of labor, elevates and ennobles the workingman. He becomes the brain of the machine, and rises through the various grades; the laborer becomes the artisan, the artisan the artist.

It is said that the mechanics of to-day are inferious to these of old owing to have a second cold owing to these these artists.



STURGEON'S HIGH-SPEED AIR COMPRESSOR .- (See page 1).

In the first place, machinery is more often the result of hard times than a cause. The popular demand for reduced cost must be met by time and labor-saving tools, and no period has been more prolific of such tools. than the last five years of depression. Ma-chinery cheapens the cost of production, consequently the cost to the consumer, and brings the product into essier reach of the masses. Though a few workmen may be temporarily thrown out of employment, the community is benefited, and the good of the greatest number must be provided for. Such hands soon drift into other channels of labor, verhaps into the making of the very labor, perhaps into the making of the very machines that displaced them; or the in-creased demand, arising from the reduced cost of the manufactured goods, will sooner or later draw the idle into employment. A hand or a number of hands are liable to discharge at any time from a variety of causes, many of them less justifiable and more hurtful to the employee than the substitution of labor-saving machinery. The introduction of almost every new process has been the means of displacing hands in the old line of work. Shall the world halt in its progress, because a few are temporarily inconvenienced? The man displaced will probably live to feel the benefits of the advance his children certainly will. In spite of occasional grumbling, the workingman was never better off than during the present generation. Many have risen in education and refinement, until deprivation of the luxuries seems a positive calamity, while be-fore the era of machinery the hours of labor were longer, and the condition of the workman, both at home and in the shop, more primitive and degraded. If mahinery

more primitive and degraded. If mahinery were abolished, the mechanic would soon find himself in a sad plight—a limited supply of everything, enormous prices, and the comforts of life gradually passing into the hands of the wealthy few.

Cheapening by enlarged production is not harmful, but the reverse, if we can maintain the relative value of our products. If an abundant crop and consequent low price of grain does not make a return to the farmer for the outlay in fertilizers and freights, it is because those prices are relatively too the relative value of our products. If an abundant crop and consequent low price of grain does not make a return to the farmer for the outlay in fertilizers and freights, it is because those prices are relatively too high. Here, then, seems to be a comprehensive cause of trouble, of which laborsaving machinery is but a small and insignificant factor, viz., the disturbance in relative values, largely the result of speculation, war, &c. That a class of men, pessessed or not possessed of a large amount of capital, should be able to bull and bear the markets upon unsubstantial and fictitious grounds, tampering with the necessities of life and frequently depriving the masses of sufficient food, is a keen estire, in this country, upon the boasted supremacy of the people.

means." It would seem unnecessary to revive the proofs which show machinery to be a blessing to mankind, did not an occasional few seem to be in the dark on that point.

In the first place, machinery is more often the result of hard times than a cause. The popular demand for reduced cost must be met by time and labor-saving tools, and no period has been more prolific of such tools than the last five years of degression. Machine or gear cutter. But there is no reason why the mechanic of to-day should not be, in every respect, the equal of his predecessor. A good machanic is always a good mechanic, according to the results of his labor.

Let us, then, accommodate ourselves to

his labor.

Let us, then, accommodate ourselves to the progressive tendency of the times, and when studying causes and effects, though individually we may be smarting from the immediate results of some beneficial innovation, let us look with the eyes of the world at large, and be willing to suffer for the moment to secure the final good of all.

C. E. Buzhy.

PHILADELPHIA, Jan. 6, 1879.

Traveling in 1841.—The late Henry Wells, who was the founder of the American express system, once delivered before the Buffalo Historical Society a paper upon that enterprise. His description of the rail-road route from Albany to Buffalo at that time, 1841, when he made the trip weekly, suggests at once the contrast between railtime, 1841, when he made the trip weekly, suggests at once the contrast between rail-road traveling then and now. The railroad was a strap rail, very suggestive of snake heads, and given to run-offs, and the common road, of which there were 65 miles, might be endured in summer, but in the spring and fall was simply horrible. "I have been 18 nights out of 21 upon the road, and 'still live.' We left Albany in the avening—one seat for myself and one for my money trunk; the other trunks were in the baggage car. Arriving at Utica at 3 in the morning, it is almost ludicrous to recall the fact that we, all the Westward-bound passengers, were forced to remain for two hours till a locomotive should arrive from Syracuse. Then we went as far as Auburn by rail, and then 'Sherwood's' coaches brought us to Geneva, and often the only place to trot was on the Cayuga bridge. We found rail again from Geneva to Rochester and Batavia, and then it took 40 miles of staging to enter Buffalo."—Albany Argus.

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ZINC STAMPING.—III.

Process of Making Dies and the Presses Employed in Stamping.

required—leaf, rosetic, scroll, or whatever it may be—is formed according to its size and the relative fineness of its parts, either in clay or wax. From this model a reverse cast is in one or several pieces, according to the size of the article, or as determined by the depth or the requirements of draft. The divisions between the different casts, where taken in parts, correspond with the joints that must be made in finishing the article after stamping, and considerable skill is required in locating them to best accommodate the requirements of stamping, and still cause them to occur only in places required—leaf, rosette, scroll, or whatever it may be—is formed according to its size and

tried in zinc ornaments. While it undoubtedly possesses many advantages over the common drop presses, to adopt it to the use of dies of irregular shapes and of irregular surfaces, and to the use of dies whose de-Whatever may have been the hopes of the pioneer company as to the possibility of accumulating such a stock of designs in its dies that no further additions would be necessary to enable it to meet all demands, it has been the experience of each of the concerns who have prosecuted this industry that, to meet the current requirements of architects, new designs are constantly necessary. It follows, therefore, that the process of die-making is of great importance, not only as concerns the first equipment of an establishment, but also as a part of its routine work. The first step in die-making is the modeling of the article to be produced. An exact representation of the article required—leaf, rosette, scroll, or whatever it may be—is formed according to its size and



ZINC STAMPING .- PROCESS OF MAKING DIES, AND THE PRESSES EMPLOYED IN STAMPING.

requisite strength to the die is obtained. From this pattern a duplicate is made in cast iron. The character of the iron employed determines the quality of the die. A soft iron, and one flowing freely, is the most desirable, because it produces a surface that is easily dressed and cleaned, and by flowing freely it reproduces the fine lines of the pattern. The die in the rough is first cleaned of sand and scale by ordinary means. It is afterward subjected to a careful trimming and sharpening by means of small files and chisels. Any defects in the surface are supplied by plugging with soft wrought iron, and the whole is carefully smoothed and polished. The skill with which this part of the work of making the die is performed, idetermines the finish of the article to be produced by the use of the die.

Instead of using cast iron, dies are occasionally cast in zinc. The chief sdvantage is the stream of the surface of the surfa

the use of zinc for dies is less expensive than would at first appear. Zinc is much softer than cast iron, and consequently a zinc die will not wear nearly so long as a cast-iron die. A zinc die, however, requires far less labor in cleaning and dressing than an iron die. For all dies from which only an iron die. For all dies from which only small strikings are required, except unusu-ally large ones, xinc is undoubtedly the most advantageous for use, and occasionally it may be employed in large patterns with kept on hand, for making new dies as re-

where they can be most readily made and concealed. The reverses, or negatives, thus obtained constitute the pattern of the die. They are properly filled out, upon the back, until the shape and size necessary to give the requisite strength to the die is obtained. From this pattern a duplicate is made in cast iron. The character of the iron employed determines the quality of the die. A soft iron, and one flowing freely, is the most desirable, because it produces a surface that is easily dressed and cleaned, and by flowing freely it reproduces the fine lines of the pattern. The die in the rough is first cleaned of sand and scale by ordinary means. It is that is, with fewer changes of hammers or forces, and with less liability to fracture.

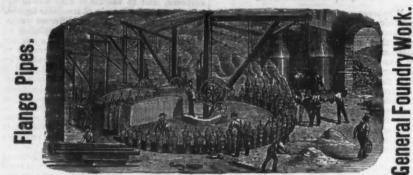
#### Steel Armer Plates and Projectiles.

The London News says: We are not only, it seems, to have steel-clad men-of-war, but steel projectiles as well, for the gunnery ex-periments at Shoeburyness prove beyond a doubt the efficacy of these missiles. There sionally cast in zinc. The chief advantage is one Whitworth projectile, we are told, which has twice penetrated an iron target of sionally cast in zinc. The chief advantage of the use of zinc instead of iron, lies in the fact that by the use of the former dies can be made without the delay incident to sending a pattern to a foundry. The scrap zinc from trimming the work produced is ordinarily melted and run into slabs before marketing, and a portion of this scrap product is always kept melted, from which to cast the forces or male dies in process of the cast the forces or male dies in process of stamping. A flask, a small quantity of molding sand and a few molding tools, and a workman of tolerable skill in molding, in connection with the melted metal always is one Whitworth projectile, we are told, which has twice penetrated an iron target of the inches, without being any the worse for the process. It is made of what is termed compressed steel, and the only proof it bears of having passed through the solid iron plate, is the fact that it is shorn of the projecting studs of brass. For its second journey, it was only necessary for the projectile to be restudded, and it then fitted the gun as accurately as before. Very little is known as yet of the action of steel shot against steel armor; but so far as experiment has gone, it appears pretty evident that, by the aid of molding sand and a few molding tools, and a workman of tolerable skill in molding, in connection with the melted metal always in readiness for pouring, constitutes all the equipment necessary to produce zinc dies upon very short notice. From the fact that the remelted zinc is just as saleable in the form of dies as in the shape of slabs, and that therefore the dies need not be melted over after using, the use of zinc for dies is less expensive the result of the same thickness effectually repulsed the short. The steel got effectually repulsed the shot. The steel got fractured in the trial, but it did not allow the shot to pass. For the moment, therefore, armor triumphed over gun; fer, as long as a battle-ship can keep out an enemy's shot, it is a matter of little importance whether her metal scales suffer. For this reason the Italians, the French and our-selves are all contemplating the building of steel-clads. But now comes the question, whether steel shot cannot injure steel armor economical results. The plaster patterns of the dies are carefully preserved for use in replacing worn-out and broken dies, and in the case of using zinc dies which are not we were before. The only difference will the case of using zinc dies which are not tept on hand, for making new dies as required.

The presses employed in the production of inc ornaments differ very little from the inc ornaments differ very little from the incomments differ very little from t The presses employed in the production of shall be able to afford but one steel-clad stamping presses used in the manufacture of tinware. In fact, the same styles of drop trocks, the class are used as employed in the latter. The drawing press, which of various pattendards apply to the drawing press, which of various pattendards apply to the drawing press, which of various pattendards apply to the drawing press, which of various pattendards and projectiles, will be magnified. We shall be able to afford but one steel-clad but he have ceased to count our sail of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred, and now number ironclads by tens, so in the future, when it tens has been so extensively introduced of the line by the hundred and the

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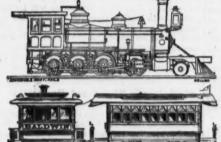
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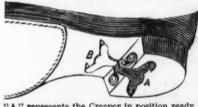
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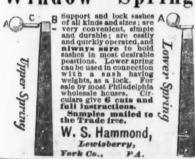
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(Continued.)

(Continued.)

The Brush machine (Fig. 2) has for its magnetic field two horse-shoe electro-magnets, with their poles facing each other, the circular armature rotating between them. The latter is not entirely covered by the coils, of which there are eight, opposite ones being connected end to end. The terminal wires are carried through the shaft to a point outside the bearings to the commutators, which are so arranged that at any instant three pairs of coils are interposed in the circuit of the machine. The machine is run at high speed and is frequently used in run at high speed and is frequently used in this country.

The Wallace-Farmer machine, (Fig. 3), has

The Wallace-Farmer machine, (Fig. 3), has a magnetic field produced by two electromagnets, with the poles of opposite character facing each other. Between the arms of the magnets, and passing through the uprights supporting them is the shaft, carrying

inferior to the others, although it uses in electrical work a large amount of power in a small space. In the English experiments the Gramme and the Siemens machines were pitted against each other. It was proved that to produce the same light a Siemens machine would weigh 3 cwt., as against 25 cwt. for the Gramme, and would require to drive it but 3.3 horse-power, against, 5.5 for the Gramme, giving a proportion of light produced per horse-power of 2080 for Siemens to 1257 for Gramme. Thus one Gramme machine would weigh more than eight Siemens machines of equal power; its cost of driving would be nearly double, and in addition to these points in favor of the Siemens machine, the prime cost of the machine is as 100 for Siemens to 320 for Gramme; that is to say, that three Siemens machines cost less than one Gramme machine of equal illuminating power. It is but just to the representatives of the French machines to state that they fully acknowledged the accuracy and fairness of the experiments made, notwithstanding their unfavorable issue. It has since been claimed by them that important improvements have been realized. rights supporting them is the shart, carrying at its center the rotating armature. The latter consists of a disk of cast iron, near the periphery of which, and at right angles to either face, are iron cores wound with insulated wire, thus constituting a double series of coils. These armature coils being series of coils.

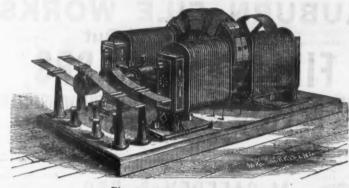


Fig. 2.—THE BRUSH MACHINE.

commutator of the same construction as that of the Gramme. As the armature rotates the cores pass between the opposed north and south poles of the field magnets, and the current generated depends on the change of

machine, constructed in such amsuner that the inducing electro-magnets shall have a retary motion, while the induced bobbins remain stationary, thus reversing the ordinary method of working this object to produce any number of electric lights. An induction wheel revolves in front of the poles of a series of electro-magnets. The bobbins of the induction wheel are in this case, the induces of the ind

bobbins of the induction wheel are in this case the inducers; they are transformed into electro-magnets by the current of a spare magneto-electric machine passed through them, and on rotation of the wheel they induce in the surrounding bobbins a series of currents, which may be utilized without employing any collector or contact ring. For example, in a machine having 50 induced bobbins there would be 50 sources of electricity, which could be used either separately or combined. The wheel or central inductor of the "distributor," as the whole machine is called, is magnetized by whole machine is called, is magnetized by the current from an ordinary machine.

connected end to end, the loops so formed are connected in the same manner on to a commutator of the same construction as that of the Gramme. As the armature rotates the cores pass between the opposed north and south poles of the field magnets, and the current generated depends on the change of polarity of the cores.

Lontin has brought out a dynamo-electric machine, constructed in suchamanner that the inducing electro-magnets shall have a (Total constituted).

(To be continued.)

#### A French View of American Trade.

In a recent number of the Journal des Debats, M. Paul Leroy Beaulieu discusses at some length the condition of American comsome length the condition of American commerce. Regarding the whole of this question with special reference to the subject of free trade, the writer endeavors to show from the history of trade in the United States, that the system of protection has, even from our own point of view, been a complete mistake. After giving the necessary figures from the Bulletin de Statistique, he points out that whereas until 1872 the imports into the States considerably exceeded reparately or combined. The wheel or cenports into the States considerably exceeded the exports, ever since that year the balance has been a constant increase in the exports, coupled with a falling off in the imports,

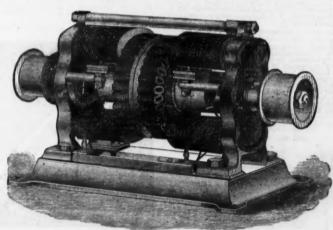


Fig. 3.-THE WALLACE FARMER MACHINE.

by De Meritens, which is really a combination of the principles of the Gramme and the Alliance machines, its special feature being that it has no commutator. The present Siemens machine, which is a favorite in England, has an induction coil, with the convolutions of the copper wire wound lengthwise with the cylinder, in the form known as the modified Siemens armature. This coil is made to revolve by mechanical means between curved iron bars, which are the present in of the cores of large, flat

This coil is made to revolve by mechanical means between curved iron bars, which are the prolongation of the cores of large, flat electro-magnets placed on either side of the induction coil, the north pole of the system being midway between the two upper electro-magnets and directly over the axis upon the bar between the lower magnets. The portion of the coil which during its revolution is traveling downward, has positive curtion is traveling downward, has positive curtions in the fabrication of machines. Passing finally to the subject of maritime commerce, the writer asserts that the same conclusions may be extracted from his statistics. Nearly rents induced in it, while the ascending half of the coil is subjected to negative currents, but both in the same direction as regards circuit.

As for the relative efficiency of the various systems of dynamo-electric machines, we are in possession of two valuable reports, one made by a committee of the Franklin Institute in May and June, 1878, and another made in England by Dr. Tyndail and Mr. J. N. Douglass to the corporation of the Trinity House. The first embraces the Gramme, two sizes of the Brush, and a Wallace-Farmer machine, the result arrived at being that the Gramme was the most economical, giving in the arc a useful result equal to 38 per cent.

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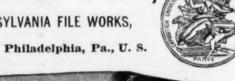
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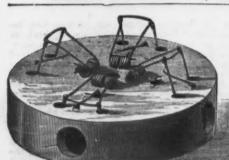
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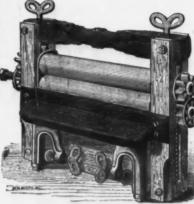
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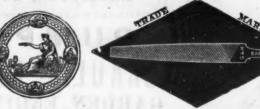
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Being constructed of metal, with firm and sub-stantial edges, curved in form to stand alone, it may be easily adjusted to any position about a stove, before a grate or fire place. The demand for something useful, durable and ornamental as a Fire Screen has long been felt, and having finally accomplished the desired result, we are prepared to fill all orders promptly.

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the metal is of sumerent throad in the low price, superior quality and fine finish of this Platform will be readily acknowledged. Packed 24 in a case.

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can be sharpened by grinding without changing their form. Cutters made on this plan will outlast many of the old form, with the advantage of being always ready

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Butts.
J. Mallinson,
Cast Steel Shears and Scissors.
Cast Steel Shears and Sc

#### A REVIEW OF British Iron, Steel and Hardware **During** 1878.

(By Our English Correspondent.)

The year now drawing to a close has been remarkable throughout for the depression which has prevailed in every branch of trade which has prevailed in every branch of trade and industry in this country. In none has the stagnation been more vividly apparent or more keenly felt, than in the iron and steel trades and their collateral branches. At no single period during the whole of the 12 months has there been any briskness; indeed since last New Year's Day, the history of the leading manufactures of the whole country has been one continuous record of the want of orders, a constantly increasing home and foreign competition, and of gradually increasing additions to the list of wholly or partially idle establishments. There have been, it is true, occasional glimpses of better prospects, and renewed hopes have now and then appeared to be warranted, but these tentative ameliorations have always proved delusive, so that tions have always proved delusive, so that at the present time the state of commerce

at the present time the state of commerce and business generally is worse than was the case 12 months ago.

The manufacturers of this country are not alone in their distress, it is true; but the fact carries very little consolation with it, and merely tends to show, indeed, that the cause which affects us here is equally potent in its operation abroad. What the malign influence is cannot be stated in so many words, but whatever its origin and nature, it evidently affects all the world alike, and does not react solely against ourselves. It does not react solely against ourselves. It may be that we lose most, but that is simply and solely because we have most to lose, and not by reason of the "decline and fall" which some imaginative writers obligingly prophesy for us. At home and among our-selves, nevertheless, we have had causes in operation which have had a natural ten-dency to produce the state of things of which we are now so universally complaining. Prominent among these may be reck-oned the reckless and enormous investments oned the reckless and enormous investments made in iron works, collieries, &c., by all sorts of persons during the inflated period of 1871-73. For two or three years a vast amount of capital was thrown into manufacturing speculations, by persons who bought at any price and who had not the most remote idea of carrying on the interests they had acquired to successful issues. With the first falling-off of business, these concerns made various plunges, in the these concerns made various plunges, in the hope of making their several white elehope of making their several white ele-phants prove productive; but the march of events has since, as a rule, proved too much for them, and the majority have either gone to the wall, or have closed their premises until the renewal of high selling prices comes to give them remunerative interest on their investments. During their existon their investments. During their existence, however, they mischievously diverted
the legitimate course of trade by underselling, and by other devices, and now remain monuments of the folly and ignorance
of those who took part in them.

Their evil influences have, it must be said,
survived them, for the stocks they had accu-

mulated have been thrown on the market, and have been so "slaughtered" as to have had a most depressing effect on the prices of steady and intelligent traders. By this means the colonies and other external markets have been largely overstocked, and in not a few instances the reputation of British manufacturers seriously damaged, whereby we have not only suffered directly, but a strong footnot only suffered directly, but a strong rou-hold has been opened for American and other competition. On the whole, therefore, there is very little that is good or laudable to be said of the year 1878, so far as the iron, steel and hardware trades are in ques-tion, almost every month having been iron, steel and hardware trades are in question, almost every month having been characterized by lower selling prices, and, what is worse, by failures, in some instances for considerable amounts. The year opened in an indifferent manner, financially and commercially, and it is closing in both those aspects in a most cheerless and disastrous fashion. With the autumn there came a series of bank failures of the utmost magnitude, and these have since reacted on altude, and these have since reacted on al-most every branch of commerce and indusneed way. Scot land two of the leading banking institutions have given way in the hollowest imaginable collapse; through them a similar institution in the Isle of Man has had to suspend; in Lancashire an old-established private banking house has crumbled into comparative noth-ingness, and in South Wales and the West of England a bank with nearly 50 branches

of cards. All these momentous occurrences could not fail, and have not failed, to shake the sta-bility of the metallurgical interests of the onity of the metallurgical interests of the nation, so that at the present time it is no matter for surprise to find that half the blast furnaces, and at least one-third of the puddling furnaces, forges and mills in the kingdom are idle; that scores of firms are unable to secure any profit, and that many others are now in court, or are but just out-side the bounds of bankruptcy. The suffer-ings thus indicated fall not only upon capiings thus indicated fail not only upon captalists and investors, but press with redoubled force on the workpeeple, thousands of whom are at this moment in want of the work which would enable them to earn their daily bread. When trade was at its best, many of them left the agricultural districts and work to the iron works and collieries for many of them left the agricultural districts and went to the iron works and collieries, for the sake of the higher wages and less slavish work procurable there. Now that the manufacturing interests are dull, these men find themselves stranded, the farmers being also unable to find them work. Thus wrecked between Scylla on the one hand and Charybits which the them hundreds of workness and dis on the other, hundreds of workmen and their families are in the direct distress, and

business the tendency of the day is in this direction, many of the employers being anxious to keep their works in operation, simply to afford their employees the means of ex-

Total Production and Average Price of Pig Iron.

Dealing with the whole of the country in respect of the iron trade, we find that at the beginning of 1878 there were 974 furnaces built, but out of that number only 541 were then in operation, and during the interval which has since elapsed, the latter total has been still further reduced. Last year we smelted about 18.250.110 tons of iron ores (of smelted about 18,250,110 tons of iron ores (of which we imported over 1,500,000 tons), but which we imported over 1,500,000 tons), but this year the quantity when fully ascertained will be found to be materially less—as will also be the aggregate production of pig iron, which, in 1877, reached 6,608,664 tons. In the latter year the average price of Cleveland pig was £2. 5/6—this year the mean quotation is nearly or quite 5/ lower; in 1877 the mean market price per ton of West Cumbers land Bessemer pig iron was £3. 12/9—this year it has been about £3. 5/. In 1877 the average of ordinary South Staffordshire pig was £4. 2/3, while so far in 1878 it has been under, rather than over, £3. 12/6; and whereas South Wales hot blast pig averaged £3. 17/6 in 1877, it has, in the period now £3. 17/6 in 1877, it has, in the period now under review, barely reached £3. 10/. All kinds of finished and manufactured iron, too, have declined in like proportion, and there have been very few sorts of hardwares which have escaped the leveling influences of the period.

Scotland.

Looking at the various principal iron-making districts in detail, we find that in Scotland the total production of pig iron during the year 1877 was 982,000 tons, as against 1,103,000 tons in 1876, or a decreased make of 121,000 tons. The consumption in foundries at home was 175,000 tons, or 20,000 tons fewer than in 1876, and in mal-Toundries at home was 175,000 tons, or 20,000 tons fewer than in 1876, and in malleable works 160,000 tons, or 15,000 tons below the figures for the same period of 1876. The quantity of malleable iron manufactured in Scotland during the year was 218,000 tons, as against 230,000 tons in the previous year. The exports (foreign shipments) of Scotch pig iron during the 12 months ending December 31, 1877, were 274,400 tons, as compared with 303,752 tons in 1876; the shipments coastwise, 170,054 tons, as against 166,190 tons in 1876; and the consignments by rail to England about 59,937 tons, as compared with 70,058 tons in the previous year, thus leaving a net decrease in the quantity sent out of Scotland of 35,000 tons. At the termination of 1877 the stock in Messrs. Connal & Co.'s stores reached 168,060 tons, as against 107,798 tons on the last day of 1876, while Co.'s stores reached 168,060 tons, as against 107,798 tons on the last day of 1876, while in makers' hands were 336,940 tons, against 255,202 tons in the year before, a total stock in hand of 505,000 tons, or 142,000 tons over the accumulation left over by 1876. During the 12 months which ended with the last day of December, 1877, the average price of Scotch pig iron had been 54/4, as against 58/6 in 1876; the average number of furnaces in blast, 103, against 116; the number of furnaces in blast on December 25, 86, as against 116 the year before; the number of furnaces existing and nearly ready, 155, as against 116 the year before; the number of furnaces existing and nearly ready, 155, as compared with 154; and the imports of English pig iron by rail and water, 353,000 tons, as compared with 285,000 tons during the year 1876. By adding the 335,000 tons of Scotch pig iron used at home to the 353,000 tons imported from England, it follows that 688,000 tons were melted in that country during the 12 months, or 33,000 tens more than during 1876. The average price of Scotch bars during 1877 was £7, as against £7, 15/ in 1876. £7. 15/ in 1876.

Toward the end of 1877 wages were reduced to about 3/6 per day, and during the present year there have been further changes in the same direction. During the year now reviewed Scotch bars have been year now reviewed Scotch bars have been £6. 10/ to £7, and during the greater portion of the 12 months the number of furnaces in use has been 88, the present exact number being 87. Of the total (155) built, 107 are old style, and 48 gas, the average weekly output of each being 184 tons. Up to the present date this year the average price of warrants has been 7/6 below last year. The total shipments of pig iron from Scotch ports to date in 1828 have been 281. year. The total shipments of pig iron from Scotch ports to date in 1878 have been 381,-589 tons, of which 227,417 tons have been foreign, and 154,172 tons coastwise—a total decrease this year of 50,591 tons. The quantity now in Messrs. Connal's stores is 199,500 tons, an increase since this time last year of 32,255 tons. In makers' own yards there are probably no fewer than 450,000 tons. From Middlesborough there rland a bank with nearly 50 branches has been imported a tonnage set down at mbled to the ground like a house built 274,221 tons, and from England by rail the quantity is (roughly) estimated at about 50,000 tons. Taking the total production of the Scotch furnaces for the whole of this year at 850,000 tons, the imports from Cleveland by sea at 300,000 tons, the imports by rail at 50,000 tons, and the stock actually in hand at the commencement of the year at 505,000 tons, it will be found that the pigiron dealt with in Scotland has been about 1,706,000 tons. It is approximately estimated that this has been disposed of in the following manner: Shipped foreign and coastwise, 400,000 tons; used at home in foundries, forges and malleable iron works, say, 600,000 tons; sent to Engage. by rail at 50,000 tons, and the stock actually iron works, say, 600,000 tons; sent to England, 60,000 tons; in warrant stores, 200,000 land, 60,000 tons; in warrant stores, 200,000 tons; and remaining in makers' own yards, say, 450,000 tons—leaving a small balance for miscellaneous purposes. These figures may or may not be precisely confirmed by the official returns, which will not be available until early in January, 1879, but they are very near the exact statistics, and give a capital idea of the "way the wind has blown" during this most perious 12 months.

The Cleveland District. In Cleveland at the end of 1877 there Phosphor Bronze for General Machine Castings, Pinconstructions, Cog Whits, Propeller Press, and Pump Barrels, Piston Bolts, Steam
Bright wire Goods, Picture Nata, Measuring Tapes:

RHODE ISLAND HORSE SHOE CO.,

Resuring Tapes:

Resulting Tapes:

In Cleveland at the end of 1877 there were 106 furnaces blowing, 1876 than at the same date of 1876; 56 blast furnaces idle, an increase of nine over the same period of the preceding year, and 162 such of the operatives as are still employed have more than once, as a rule, had to concede percentages of their wages during the year, and at the present time important movements are afoot for securing other reductions of this kind. In all branches of in the official warrant stores was 42,730 tons, according to the PHOSE. Cutlery.



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Corporate Mark

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Granted 1777.

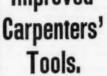
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113, Improved Adjustable Circular Plane

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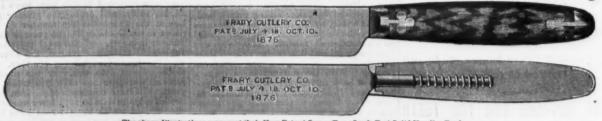


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To distinguish Articles of Joseph Rodgers & Coms' Manufacture, please to see that they bear beir Corporate Mark.

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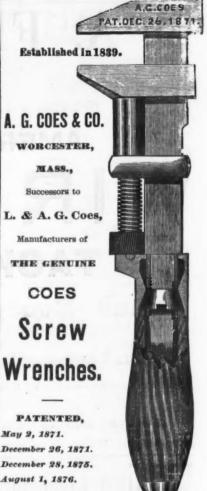
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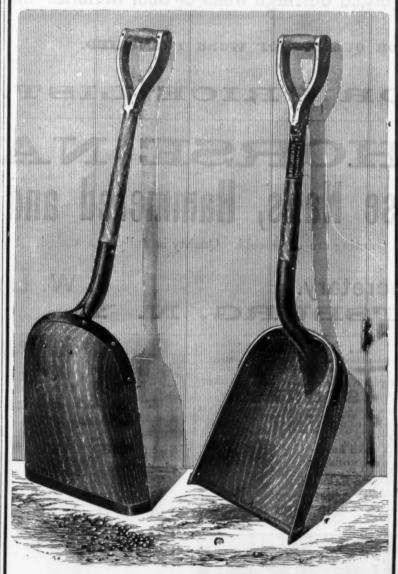
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We would call the attention of the trade to the above new article of our manufacture, and to its many advantages over the Steel Blade Scoop heretofore used for the same purpose, advantages which we think are destined to make it of universal use for the shoveling of grains of all descriptions, as well as for potatoes, apples, etc.: First, as to its weight, which is a little more than one-half that of a steel scoop of the same capacity, consequently it can be handled more rapidly and accomplish more work in a given time; second, as to its appearance—it is more sightly, being of a graceful shape, and constant use has the effect of giving the wood a beautiful hard polish, causing it to penetrate the mass of grain readily and deliver its load promptly. It balances perfectly in the hands, is thoroughly braced and guarded with iron at all exposed points, and is fully as strong and in some respects more durable than the steel scoop used for the same purpose. One trial will insure its future use to the exclusion of all others.

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against 21,500 tons at the end of 1876; the total stock in the district thus being 304,797 tons with which to begin the new year. tons with which to begin the new year. The quantity of ironstone got at the various Cleveland mines during the year was about 6,252,314 tons, or 250,000 tons below the output of 1876, and the number of miners thus engaged, 9000, or nearly 1000 fewer than at the end of the year 1876. During the year 1877 the manufacture of finished iron in Cleveland reached something like 400,000 tons, of which about 200,000 tons were plates and the bulk of the balance bars and angles. In the three months ending and angles. In the three months ending Nov. 30, 1877, the sales were officially stated Nov. 30, 1877, the sales were officially stated to have been 97,804 tons, at a net average selling price of £6. 10/7½ \$\frac{1}{2}\$ ton. Of the total 9268 tons were iron rails, 51,419 tons plates, 19,939 tons bars and 16,797 tons angles, bulbs, &c. The decline in the net average selling price during the 12 months was 7/5. During the year ship plates declined from £9. 5/ to £6. 5/, bars from £6. 7/6 to £5. 10/, angles and ship-builders' iron from £6. 17/6 to £6, and iron rails from £6. \$\frac{1}{2}\$ to £5. 18/. In the present was these

7/6 to £5. 10/, angles and ship-builders' iron from £6. 17/6 to £5, and iron rails from £6. 5/ to £5. 15/. In the present year these quotations have still further descended to the extent of 10/@ 20/\(\frac{12}{27}\) ton, and the total make to date has probably reached 360,000 tons.

The stock of pig iron now in hand in the district is estimated at about 275,000 tons.

On the West coast the year opened calmly enough, the only fairly well-employed establishments being the Barrow Iron and Steel Works. The then current quotations for Maryport hematites were: No. 1, 67/6; No. 2, 65/; Nos. 3, 4, 5, mottled and white, 62/6; Bessemer No. 1, 67/6; No. 2, 65/; and No. 3, 62/6; Millom Bessemer No. 1, 70/; No. 2, 57/6; and No. 3, 55/; ordinary, Nos. 3, 4, and 5, 65/; in all cases with an allowance of 2½ off for cash. When 1878 came in there were 33 out of a total of 50 furnaces in blast in various parts of Lancashire, although the comparative prosperity of the Bessemer steel trade has prevented the West coast producers from feeling the depression in its full force. At the time of writing selling prices are nominally within 2/6 per ton of those last named, so that in this respect the average comes out well.

South and West Vorkshire 1878 opened

duction has been less than the 100,048 tons made by 13 (out of 20 altogether) furnaces last year, and the ironstone mines have also been much less actively worked. Lincolnshire in 1877 had 10 furnaces, out of 21 erected, at work, and produced 116,857 tons of pig, whereas this year the average number of furnaces in blast has been fewer, and the aggregate output proportionately smaller. At Sheffield, during the present year, there has been no real improvement. Some of the current quotations at the inauguration of the period under review were: Fine cast steel for stocks, dies, and general tools, \$24 \( @ \frac{2}{2} \) (2 \( \frac{2}{2} \) (5); ordinary sheet steel to 20 \( \frac{2}{2} \) (W. G., \$\frac{2}{3} \) (4 \( \frac{2}{2} \) (5); ordinary sheet steel to 20 \( \frac{2}{2} \) (W. G., \$\frac{2}{3} \) (4 \( \frac{2}{2} \) (5); common sheet, \$\frac{2}{2} \) (2 \( \frac{2}{2} \) (3 \( \frac{2}{2} \) (4 \( \frac{2}{2} \) (3 \( \frac{2}{2} \)

The heavy branches of the iron trade at Sheffield have been exceedingly quiet during the 12 months now drawing to a close, and, as a necessary sequence, the iron workers and other operatives have had their rates of and other operatives have had their rates of remuneration lowered more than once. Much of this dullness has been caused by the comparative inactivity of the armor-plate mills, none of the leading governments, including our own, having given out large orders, owing to the uncertainty which has prevailed in respect of the merits of the various new kinds of armor which have been experimented with, not to mention the marked superiority of gunnery over the iron plates in general use. This objection still retains its force, although the most recent tests with compound iron-and-steel plates have very materially reduced the disadvan-tages under which defense has labored, as tages under which defense has labored, as compared with the means of attack. Another cause of the lack of employment in these particular departments, has been the gradual substitution of steel for iron in the manufacture of ship plates and other bulky rolled articles—a change which is likely to progress, rather than be retarded, in the fu-ture. The stagnation of the coal trade has also reacted in a similar manner, by reducing the requirements of wagon builders within very narrow limits, and, again, by causing the railway companies to exercise the utmost caution in giving out orders for plies to Birmingham, which is virtually not

a further and most important factor in the reckoning has been the almost marvelous extent to which Bessemer material has replaced the commoner grades of crucible steel. Still another cause is to be found in the steady augmentation of the production of Siemens-Martin steel. In the manufacture of this excellent metallurgical product it may be stated there are now 16 firms en ture of this excellent metallurgical product it may be stated there are now 16 firms engaged in this country, with a total of nearly 100 furnaces (94 on January 1 last), together with seven concerns which employ the Siemens regenerative gas furnace for melting the steel in crucibles, with a total of 534 such crucibles among them. One Sheffield house alone has 216 crucibles at work in this manner. Of the Bessemer steel industry there is a much better account to be given than of any of the heavier processes, almost the whole of the large establishments engaged therein having kept their plant in brisk operation throughout the year. At the beginning of 1878 there were 110 Bessemer converters in use in this country, varying in individual capacity from 10 tons down to 2 tons 10 cwt. each. Since that time two or three other small converters have been erected and put in operation, and

about 1, 162,345 tons. This year the output has been materially less in Lancashire, although the comparative prosperity of the Bessemer steel trade has prevented the West coast producers from feeling the depression in its full force. At the time of writing selling prices are nominally within 2/6 per ton of those last named, so that in this respect the average comes out well.

South and West Yorkshire and District.

In South and West Yorkshire and District.

In South and West Yorkshire 1878 opened very quietly and with poor prospects, especially in the iron trade. Current figures were: Common bars, £5. 15/ @ £c. 17/6; medium, £7; best, £8 @ £8 10/; plates, £8, and hoops, £9 @ £9. 10/. These have all come down by 10/ @ 12/6 % ton, as also have the pig iron brands of both localities, current figures ranging from £1. 16/ to £2. 15/ % ton. Of the 48 furnaces built in January last, 30 were then blowing, and about that number have been in operation during the greater part of the year. In 1877 the production of pig iron in the whole of the West Riding was 229,027 tons, the largest number of furnaces in blast at one establishment being 7 at Low Moor. In Derbyshire 37 (of a total of 53) furnaces produced 328,203 tons of pig, but this year the output has been under 300,000 tons. In Northamptonshire this year's pig iron production has been less than the 106,048 tons made by 13 (out of 20 altogether) furnaces last year, and the ironstone mines have also been much less actively worked. Lincohnshire in 1877 had 10 furnaces, out of 21 ereczed, at work, and produced 116,857 tons of pid the producing in the reczed, at work, and produced 116,857 tons of the producing in the reczed of th

reached 255,383 tons.

In South Staffordshire proper there were 57 furnaces in operation (out of 146 built) on Jan. 1, and these probably will have produced about 400,000 tons of pig by Dec. 31, as against 428,276 tons in 1877. In Shropshire 14 furnaces (of 23) last year made 102,180 tons of pig; this year their production will doubtless have been under 100,000 tons. Gloucestershire has nine blast furnaces, of which the four in use last year made 25,602 tons, a total of at least 10,000 tons in advance of this year. In Wiltshire there are seven furnaces, of which two have been in general use; in Hampshire one furnace, general use; in Hampshire one furnace, and in Somersetshire one (which has been idle), their aggregate production being set down at about 20,000 tons of pig. In South Staffordshire generally, and the districts which are mostly spoken of as being subsid-iary to it, the whole of 1878 has been stagnant and unsatisfactory to the ironmasters and hardware manufacturers, not a few of whom have been compelled to suspend operations, either voluntarily or owing to the pressure of their creditors.

In the nail and certain other trades in-digenous to the Black Country, labor dis-putes have further complicated matters, but the men have almost universally had to the utmost caution in giving out orders for new rolling stock or for renewals of existing vehicles.

The older branches of the steel trade have suffered and still suffer from the restricted external demand, as well as from their own internal development. The expansion of the production has necessarily brought about a corresponding growth of competition, while

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The Safest and only reliable Seat Fastener for Wagons. RICHARD DUDGEON

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Roller Tube Expanders and Direct Acting Steam Hammers. Communications by letter will receive prompt attention. Jacks for pressing on Car Wheels or Crank Pins made to order.

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Lyon's Patent Metallic Heel Stiffener.

These can be applied to any Boot or Shoe at any time by any one

Every pair is warranted to bend to fit the boot without breaking.

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be attributed to the great variety of businesses carried on at and about Birmingham, to the increased use of machinery, and to the energy and enterprise with which the manufacturers have forced their way into new markets, as well as to the adaptations of new patterns they have made, in order to endeavor to stem the current of American and other outside competition. No doubt profits have, in most instances, been meager; yet the fact remains, and stands forth to the great credit of the town, that there is to-day less suffering, and a smaller number of unemployed workpeeple there, than at any other large town where iron or hardware is the staple trade. It is, no doubt, true that there has been a hard and unbroken struggle all the year through; but the fight has been carried on unfinchingly, and with much more success than could have been predicted some time back. Some of the local industries commenced the year badly, but have experienced a certain revival since, while others have fallen away from the promise they bore on the advent of the present year of grace. The good, however, has almost wholly counterbalanced the evil, and, as things now stand, "Old Brum" is in a better position than most of her neighbors. In all departments where sheet or other iron is largely worked up, prices have come down since last Christmas. Indeed, in pretty nearly every branch strenuous efforts have been made for the purpose of cheapening the finished article, so as to stimulate buyers. To enumerate all the changes of this class would be to attempt an impossibility, not to mention the fact that everything of material interest to the trade impossibility, not to mention the fact that everything of material interest to the trade has been fully and fairly chronicled in my weekly letter to this journal.

Wales and Monmouthshire.

Wales and Monmouthshire.

In North Wales the total existing number of blast furnaces is 11, of which three have been in operation during a great part of the year, the product being estimated at about 24,000 to 25,000 tons of pig, as against 26,715 last year. In South Wales there are 89 furnaces built and about 27 or 28 only at work, the production being set down at about 300,000 tons of pig for the whole of the year, as compared with 342,478 tons in 1877. Of the aggregate number of blast furnaces in South Wales, 13 are constructed to use anthracite coal, but only three or four of these are in use. In Monmouthshire, out of 61 furnaces erected there have been about 30 blowing during most of the year, with a of 6f furnaces erected there have been about 30 blowing during most of the year, with a production which will probably reach a little over 300,000 tons, as against 368,480 tons in 1877. The iron trade, however, of South Wales and Monmouthshire is clearly in its decadence (as is shown by the foregoing statistics), but it is most satisfactory to note that much of that which is lost in that sense is regained in another, there being now at least four large Bessemer steel concerns, besides the Londore-Siemens and other works for the production of the newer materials. Whether, as Mr. Crawshay is reported to believe, another period of good trade would bring a renewed demand for iron rails, or otherwise, it is scarcely possiported to believe, another period of good trade would bring a renewed demand for iron rails, or otherwise, it is scarcely possible to predict, but it is, in the meantime, gratifying that the metallurgists of the principality and its nearest neighbor are marching with the times, in preference to following the notorious policy of Mr. Micawber. In one notable particular there has lately been a marked change for the better, that is, in respect of the tin-plate industry, in which a judiciously arranged and firmly carried out policy has at length given a fillip to business and an upward course to prices. This had been attempted on previous occasions, but without success until the present movement, which embodied its policy of restriction last month, and has since carried it out steadily and successfully.

There are 75 tin-plate making concerns in this country, with a total of 261 mills, of which there were 211 in going order at the beginning of this year. The aggregate output of tin, terne, and black plates per annum is believed to be nearly or quite 4,500,000 boxes, of which two export nearly 3,000 coo boxes, of which two thirds go to

num is believed to be nearly or quite 4,500,000 boxes, of which we export nearly 3,000,000 boxes (of which two-thirds go to the United States), besides about 43,000 boxes of Canada plates, the whole of the latter being shipped from Liverpool. Next to the United States, our best customers for tin plates are British North America, Australia France and Switzerland India. Australia, France and Switzerland, India and China, Holland, Germany and Belgium, and the large Mediterranean countries.

Prior to the inauguration of the restriction policy referred to above, prices of all kinds of tin plates had sunk to an altogether unspeculated lavel, extinguished by a large series of the mine. He has now found that he can be restricted by the mine of the mine. Prior to the inauguration of the restriction policy referred to above, prices of all kinds of tin plates had sunk to an altogether unprecedented level, ordinary cokes being sold at 13/@13/6 per box, and charcoals at equally runious (to the manufacturers) rates.

Already, however, an improvement of 1/@1/6 per box has been effected, and the development of the disadvantage that the sun to the disadvantage that the sun to the disadvantage that the plante pile cannot be employed, is overcome. Recent researches of M. Coquillion have shown that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the bicarbide of hydrogen determines the disadvantage that the sun that the sun that the disadvantage that the sun that the s 1/o per box has been effected, and the demand is so well sustained that further upward alterations may be looked forward to. The manufacturers are, after much tribulation and the manifold bad consequences of dissociation and so-called independent action, well knit together in an association, and seem likely to be able to carry out their least the fruitten they desire. plans to the fruition they desire. Among other noteworthy changes recently introduced by them, may be noted the determination to re-establish quarterly meetings, at which they can report progress and feel the pulse of the trade.

The Hail Trade.

The rail trade opened in a better condition than it had been during a great part of 1877, and has remained moderately well engaged all the year. During 1877 we exported rather over 400,000 tons of rails—about two-thirds being steel—and used at home something, under thet quantity. The price of tion than it had been during a great part of 1877, and has remained moderately well engaged all the year. During 1877 we exported rather over 400,000 tons of rails—about two-thirds being steel—and used at home something under that quantity. The price of iron rails declined from £5. 5/ @ £5. 10/ to about £4. 12/6 @ £4. 17/6 \$\frac{1}{2}\$ ton during 1876, and steel from £6. 12/6 to about £6. During the present year these quotations have each been further reduced by from 7/6 to 15/ \$\frac{1}{2}\$ ton, by making which changes the principal manufacturers have been enabled to "keep moving," and have, at the present time, their order books so satisfactorily filled on home, foreign and colonnal account, that they are assured of work for some months ahead.

pull passenger trains, and is an anthracite waste fuel burner. Heretofore Mr. Wootten's patent has been applied only to engines for coal and freight trains, and its application to passenger engines is a step forward. The locomotive presents a strange and novel sight. Instead of the cab being at one end, it seems to be in the middle. About 5 feet of boiler can be seen in front, and about the same length of flat fire-box in the rear. The cab is immediately above the main drivers. The furnace is built long and flat, with a view of obtaining as much heating surface as possible, to enable them to generate steam by slow firing. The engine will be tried on the road to-day, and then taken into the shops to receive her trimmings and finishing touches.—Reading (Pa.) Eagle.

#### Scientific and Technical Notes.

It appears that the system of UNDERGROUND CABLES,

first tried some time since between Berlin first tried some time since between Berlin and Cologne, in Germany, is fast gaining ground in that country. According to the Deutsche Industrie Zeitung, 1279 miles are now finished, the lines being Berlin, Halle, Frankfort, Strassburg; Halle, Leipsic; Berlin, Magdeburg, Cologne; Cologne, Barmen; Berlin, Hamburg, Kiel. Within a short time this is to be increased to 10,018 miles.

In an article contributed to the Revista Marithma, Signoy A. Lettieri has described

Marittima, Signor A. Lettieri has described an apparatus for the

DETERMINATION OF THE RESISTANCE OF-FERED TO SHIPS

by experiments on their models. In experiments of this nature, the elements to be de-termined are two—the uniform velocity and the resistance encountered at that velocity. The first of these is obtained by the measure of the space passed through in a unit of time. It is, therefore, desirable to have an apparatus which shall graphically denote this velocity by a curve, and refer it to a measure of the resistance. To effect this, Signor Lettieri has designed a vertical cylinder (the drawing shows the length to be 14 times the diameter, but neither scale nor dimensions are given), which revolves on a fixed axis. The upper part of this axis sustains a pulley, and a second pulley is fixed beneath the cylinder, with a small drum on its axis. A line attached to the drum passes over the upper pulley and sustains a scale pan, to which is fixed a pencil, the point of which presses against the cylinder. The model is attached by a line to the lower pulley, so that the descent of the weight corresponds to the movement of the model through the water, while the weight itself is a measure of the resistance. Movement is given to the vertical cylinder by means of a pair of conically toothed wheels, one of which is attached to the cylinder itself. The motion of the latter being made thus uniform, and its velocity known, the curve traced on it by the pencil will indicate the relation between the movement of the model and that of the cylinder, and will form a regular spiral when both movements are uniform. The remainder of the paper is occupied by an algebraical investigation of the curves thus to be obtained, and by the relation between the weight placed in the scale pan and the resistance encountered by the model in its passage through the water. the resistance encountered at that velocity. The first of these is obtained by the measure by the model in its passage through the wa-

The Chemiker Zeitung contains a descrip

METHOD OF TESTING DYNAMITE.

The percentage of nitroglycerine is determined by extracting it with ether, which dissolves it, but leaves the infusorial earth unchanged. The difference in weight of the dynamite and of the infusorial residue, directly yields the percentage of nitro-glycerine. In order to accertain whether the dynamite contains any other bodies soluble in ether, the ether extract is diluted with water, which precipitates any foreign substances present. stances present.
One of the most interesting attempts to

INDICATE DANGEROUS ACCUMULATIONS OF

FIRE DAMP.

onates more violently than the mono-carbide, that palladium produces a smaller detonation than the platinum, and that both metals can burn small quantities of gas. Mr. Coquillion has accordingly re-placed the former by the latter metal in his

portable apparatus.

The National Car Builder states that a trial will soon be made with a

NEW ELECTRIC CAR SIGNAL,

recently patented by J. A. Sherman and C. E. Mees, of Louisville, Ky. The invention consists in combining a signal device upon the locomotive, with two conducting wires extending through the cars of the train, and terminating at the end of each car in

tuted. Even when a person speaking stands from 75 to 100 feet from the microtuted. Something entirely new in the passenger engine line has just been turned out at the depot machine shops of the Reading Company, at this point. The engine is built to leart or lungs.

# The Iron Age

Metallurgical Review.

New York, Thursday, January 9, 1879.

DAVID WILLIAMS Publisher and Proprieta JAMES C. EAYLES JOHN S. KING . . Bu

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#### CONTENTS.

First Page .- Sturgeon's High-Speed At Compressor. Laws Relating Travelers' Licenses. American The Birmingham Wire Gauge. Laws Relating to Commercial censes. American Wheat in Spain.

Third Page.-Conservatism in Trade. Trav

Fifth Page.—Zinc Stamping.—III.
Armor Plates and Projectiles. Seventh Page .- The Electric Light, A French

View of American Trade.

Ninth Page.—A Review of the British Iron.

Steel and Hardware During 1878.

Eleventh Page.—A Review of the British Iron, Steel and Hardware During 1878 (Continued).

Thirteenth Page.—A Review of the British Iron, Steel and Hardware During 1878 (Concluded)

ientific and Technical Notes. Fourteenth Page.—Specie Payments. Heating Cities by Steam. Gold and Silver. The Martins Patent in the United States. Contraction of English Credits, and the Effect on American

Trade. A Year's Failures in Great Britain. Fifteenth Page.—Grips for Testing Metals.
The Chinese Treaty Question. History of the

Sixteenth Page. -The Situation in the Iron ton (Ohio) District. A New Year's Jubilee.

Seventeenth Page.—Trade Report. General

Eighte-nth Page .- General Hardware (Con

Metals, Paper Stock, etc. Nineteenth Page.—Coal Philadelphia, Pitta-burgh Chattanooga, Boston, Cincinnati. entieth Page .- Baltimore Louisville Rich

mond. Our English Letter. Industrial Items, Twenty-second Page .- Railroad Contracts in The Distress in Sheffield. Western Iron

Twenty-third Page.-The Iron Age Direc-Twenty-fourth Page -Western Iron Trade (Concluded). Ohio Iron Statistics.

Twenty-sixth Page.—New York Wholesale Prices. Twenty-seventh Page. PNew York Wholesale Prices (Concluded).

Thirty-third Page.—Philadelphia, Buffalo. Chicago and Pittsburgh Hardware and Metal Prices. Forty-fifth Page.—Boston and St. Louis. Hardware and Metal Prices.

Whatever may come of the excursion of without many and good results, and we congratulate those who are so fortunate as to be of the party. They will learn much of the country, of the people, and of the conditions there existing which are favorable or time. The abounding hospitality of the reception, and the programme of excursions. receptions, balls, banquets, bull fights and two brief intervals of rest, which, we It is not probable, however, that all who go will come home with nothing better to show

in the party, who will not fail to learn a great deal. They will find German competi-tion exceedingly strong in Mexico, and German trade well intrenched in all the princi pal Mexican cities; but then the Germans do not make American goods, and perhaps we shall find a way to make a better mar-ket there than now exists.

#### Specie Payments.

The fact that the resumption of species payments by the Treasury has been approached without disturbance, and attained not only without shock, but without causing even a ripple of excitement in business circles, should teach the gloomy prophets of evil, who predicted that resumption would be attended with widespread disaster, that it is not safe to be too confident, nor expedient to take a glocomy view of what a majority of the people consider desirable It is possible that the occasional chance to cry "I told you so," compensates them for many disappointments in the non-fulfillment of their prophecies; but, in this case, they cannot have even this poor satisfaction. When the time fixed for resumption drew near, business of all kinds quietly and nat-urally adjusted itself to the new basis, and specie payments were an accomplished fact in the general and financial markets, weeks before the date at which the Treasury was by law required to redeem in gold such of its demand notes as might be presented for redemption. The idea that resumption would be impossible until the Treasury held a dollar in gold for every dollar of outstanding greenback circulation, was always manifestly an absurdity. It presumed that the people wanted gold, and did not want paper money. Exactly the reverse of this is true. What the people wanted was simply true. to have their paper money so appreciated in value that it should be at par with gold. When this point was reached, there was obviously no inducement to make the ex-

Owing to a variety of causes, some accidental and some the result of good management, gold has accumulated in the Treasury to a far greater extent than was generally expected; but, inasmuch as it was not a constrained concentration of coin, its accu mulation has not been attended with any stringency in the financial markets. However, it has given the Treasury some \$225,-000,000 of coin, of which about \$180,000,000 are available for specie resumption. This percentage of coin reserve is less than is considered necessary by the Bank of England or the Bank of France, but it is ample under the circumstances, and the Treasury Department can safely defy all attempts to seriously impair it. The department was right in assuming that the people would neither need nor desire gold when it could be had in exchange for greenbacks at par; and while a large coin reservo may be needed to inspire the public with full confidence in the sincerity of the offer to redeem outstanding Treasury notes, it is practically much greater than was needed to afford a safe basis for resumption.

Looking back over the past 17 years, we find good cause for congratulation that the consequences of a depreciated paper currency have not been more permanently serious than they were, and it would take more than argument to reconcile the business community to the idea of again passing through this dangerous maelstrom of speculative excitement. Once more on solid ground, contracts of all kinds have a definite basis, which they never could have when the value of the currency of commerce was subject to sudden and violent fluctuations. Commerce is no longer handicapped by the absence of fixed standards for the importer and the exporter, and there no longer exists the temptation to are, doubtless, many who regret that these tribute all our misfortunes, not to the evils boilers are needed, steam can be as cheaply the correction of those evils. As well might system. Hence there will be more or less fact is generally recognized that health and bear. The panie, the widespread disaster, and the protracted depression, were necessary steps toward convalescence. They ful. must have come sooner or later, and no artificial stimulants in the shape of new issues. or efforts to float the old and sustain formanufacturers and merchants to Mexico in mer valuations, could have long averted fuel will be saved. Both these claims seem the shape of actual business, it will not be them. Now that they are past, and we have touched solid ground again, he must be wild indeed who longs for another balloon flight, or who would favor inflation. -either paper or debased silver coin-as a will unquestionably have a roaring good the national prosperity. There is, so far as accomplished by the ordinary methods of 1878. can now be seen, but one cause which Mexicans will insure them a most hospitable threatens the disappointment of the confi- is worth. In the heating of private houses, dent hopes of substantial recovery entertained by the business community. This sight-seeing generally, has been made with is the uncertainty with regard to the economy. The system will also have a evident forethought, for there are at least future value of silver. Should a great amount of legal-tender dollars be coined, buildings whose rents are so low or the numshould say, will be found very necessary. and the value of silver bullion remain depreciated, it is not improbable that United tion of steam would not now pay. States notes, redeemable in silver as well as . The cost of attendance, danger and an-

serious evils of a fluctuating currency, it is these away, the field for steam using is vastly to be hoped that Congress will anticipate the difficulty by limiting, or stopping, the further coinage of silver until the value of this

metal is definitely determined. That resumption is not the last straw to break the backs of industry and trade is already evident, but it is not to be supposed that the prophets of evil will be silenced. They will say: "Yes, we have got down to specie payments, but what are the conse quences of the suicidal policy? Industry is paralyzed, trade is ruined, thousands have drifted into bankruptcy, capital has shrunk and shriveled, and all that remains of our prosperity of two years age is a memory." This is consistent and sounds mpressive, but are we sure it is quite in ccordance with the facts of the case? The close of the year was awaited with anxiety, but it was attended with an unusually small number of failures. The prediction of a good business during 1879 is on the lips of nearly every manufacturer and merchant, and this faith is vindicated by the preparations now making for the spring trade. The industries of the country are already feeling the stimulus of a steadily increasing onsumptive demand. Railroad accounts show increased earnings, and increasing exports are demanding new lines of steam service from the principal cities of our Atlantic seaboard. Our foreign trade is in a satisfactory condition, with steadily improving prospects as regards the foreign market for our manufactures. All classes are adjusting themselves to the changed conditions, and those who have felt most heavily the decline in wages, appreciate most fully the increased purchasing power of currency. In a word, the situation is re-

#### Heating Cities by Steam.

markably favorable, from whatever stand-

point it is viewed, and while a return of the

conditions existing prior to 1873 is neither

possible nor desirable, there is no apparent

reason, except the 4121/2-grain silver dollar,

why this nation, rich in resources and strong

in proven credit, should not experience

regular, healthy and sustained development

for many years to come. The new year is

full of cheering promise.

In a recent issue we mentioned at some length General Spinola's steam-heating scheme, together with the fact that he had obtained the necessary permission to try it in this city. A small district some where on the river front, we understand, is to be used for the purpose of demonstrating the value of the plan. It is not understood that the Holly system alone is to have the exclusive opportunity to lay pipes here. If this system is successful. other systems will be allowed to compete. Ex-Mayor Ely says the company will not be allowed to take up paving, &c., without giving bonds to insure the proper filling of trenches and repaving of the streets. The grant is much less comprehensive in its character than was at first supposed, and it would seem that the franchise is yet to be disposed of. How valuable this will be can best be understood from an examination of the opinions and claims of General Spinola. The first point is made in regard to the economy in carting away ashes. With respect to this he says: "It costs the city now, so I am informed by the police, \$225,000 a year to carry away ashes from in front of residences in this city. Now, if this system of ours is universally adopted, there will be one item of economy, for there will be no ashes to cart off."

This statement we think altogether too broad. While we have not the figures at hand to verify it we cannot say positively, but we believe that a part of the expens mentioned is chargeable to the removal of garbage. A universal adoption of steam heating is manifestly impossible, nor demoralized all departments of trade. There do we think it altogether desirable or economical in all cases. In a large build conditions do not now exist, and who at- ing, where from 50 to 100 horse-power of inflation, but to the methods adopted for produced on the premises as by the Holly the wasted, but convalescent, fever patient ashes always, and the expenses of removal long for the wild dreams of the delirium will to some extent fall upon the city. The through which he has passed. Fortunately, next point made is a reduction of cost but few business men feel this way. The in the heating of the public buildings of the city, from \$600,000 to \$200,000. This soundness are desirable at any cost—even at includes station-houses, police stations, &c. the great cost we have been called upon to The figures seem large, but we should not be surprised if a reduction of one-half were possible. The present system is very waste-

It is urged that a saving of one per cent. can be effected in insurance, and that in the case of private houses half the cost of the somewhat extravagant, yet by strict economy the company may be able to effect a great reduction in the cost of warming. The waste of fuel by our present methods of coal is much higher in price than it is now, consumption that will not cost more than it then, we must expect not only the greater proportion of customers, but the greatest great value for small flats and for those ber of occupants so small that the introduc-

tical, observing, enterprising business men par of gold. As this would again entail the more generally adopted. When we take from encouraging.

increased. What results may follow in the way of changes in habits of living, cooking, the plumbing of houses and the general domestic economy from its general introduction, it is difficult, if not impossible, now to imagine. It is evident, however, that a revolution of the most sweeping character is likely to follow. For example, in plumbing work we may expect a steam, instead of a hot-water system. And we may find water heated by blowing steam into the bath tub. instead of being heated in a boiler. The plumbing, or rather the steam fitting, will be in some respects peculiar, for if the conductng pipes are not protected from radiation in the most careful manner, great inconvenience may result in warm weather.

Although no trouble has been experienced in Lockport, as yet, from the bursting of mains, it is not to be expected that a long and complicated network of steam pipes can be laid in the streets without eventually giving trouble. The bursting of a large steam main under a pressure of 200 pounds per square inch, is not a pleasant accident to conemplate. In case such a burst ruptured a ewer, very serious damage to houses in the vicinity might occur. The precise character of the accidents possible with this system cannot, however, be predicted with any certainty, for the reason that we know so little of the behavior of steam under such conditions. Should a burst occur in cold weather. no doubt much inconvenience would follow to those houses on the immediate section of pipe where the accident happened. By double system of supply this can be largely avoided, but at an increased cost.

We are not altogether pleased with the

nethod in which the details of Mr. Holly's system have been worked out. They seem in many instances more ingenious than mechanical. The plan of wire drawing the steam so that the pressure within the house shall be only three or four pounds while the pressure in the pipes is 200, does not impress us favorably. It would seem that the resulting loss will be serious. In the measure ment of steam there appears to be room for serious error. There is, so far as we can understand the operation of the meter, no means of insuring dry steam; and should the boiler prime considerably, a serious loss to the consumer would result therefrom. Much stress is laid upon the abundance of hot water which the system will furnish, but it will be rather expensive heating if the hot water has to be paid for at the same price as the steam-that is, if wet steam, passing through the meter, costs just as much as dry steam. Separators can doubtless be used which will give steam reasonably dry, but if the company has to suffer this loss, they may find it a very considerable tax upon them. The experiment at Lockport, although satisfactory in some respects, does not give any hint of what the actual loss by condensation amounted to. Gen. Spinola claims that the protection is so complete that little or no condensation takes place within the street mains. This can hardly be the case, as the covering described, although a very good one, does not seem to be by any means perfect. Careful experiments must be made with the experimental works before the remarkable statements which have been made can be accepted with confidence by the public.

#### Gold and Silver.

The annual statement of Wells, Fargo & Co. shows that, during 1878, there was an important falling off in the gold and silver production of the United States. The production of both metals in the States and Territories is given as follows, for 1877 and 1878:

G-93 NR 92 H	1878.	1877.
California	18,920,461	\$18,174,716
Nevada	35,181,949	51,580,290
Oregon	1,213,724	1,191,997
Washington	73,311	92,226
Idaho	1,868,122	3,832,495
Montana	3,763,640	2,644,913
Utah	6,064,613	8,113,755
Colorado	6,232,747	7,913,549
New Mexico	453,813	379,010
Arizona	2,287,983	2,388,622
Dakota	2,215,804	3,500,000
Total	378,276,167	\$95,811,572
Deduct lead		5,085,250
Total gold and silver.	74,824,167	\$90,726,323
Mexico, W. coast	ST. 504-005	\$1,439,002
Br. Columbia		1,177,190
Total	\$2,878,455	\$2,610,182

The following statement shows the preduct of lead, silver and gold since 1870 :

Lead. Silver. Gold. Silver, Gold, \$17,330,000 \$33,750,000 \$19,886,000 \$34,398,000 \$19,924,489 \$31,09,395 \$20,690,122 \$36,466,488 \$31,635,329 \$39,920,924 \$4,886,935 \$45,846,109 \$44,880,223 3,450,000 5,040,000

Although the items which make up the total of \$78,276,167 are not given for 1878, it is probable that the silver and gold pro duction was about \$37,000,000 each. with attendant depreciation of the currency heating is something enormous, and until falling off in silver is due in a great degree to the lessened production of the Comstock unfavorable to American trade. The party means of stimulating trade and increasing no saving of any considerable value can be lode-\$37,911,710 in 1877, and \$21.295,043 in

Both Belgium and Sweden are suffering more or less severely from depression in business. The iron industries of these countries are much affected, and in Belgium there is great distress among the working classes. In Sweden the peasantry are said to be in a pitiable plight. There have been everal important bank failures in Stockholm, which have ruined many of the great for their visit than dinner cards and orders gold, would follow the downward course of noyance of the boilers are some of the chief landed proprietors, or Brugspatrons. In of dancing. There are many shrowd, practited metal and drop below the reasons why this system of heating is not both countries the immediate outlook is far

#### The Martin Patents in the United States.

We have the following letter from Messrs. Cooper, Hewitt & Co., relative to the Martin patents, under which they are granting licenses for the manufacture of open-hearth

NEW YORK, Jan. 2, 1879. To the Editor of The Iron Age—Sin: As the article in your columns of to-day's date, "The Siemens-Martin Discussion," might be construed in a sense injurious to the rights, in this country, of the Messrs. Martin, whose agents we are, we take occasion to say that nothing in the correspondence of casion to say that nothing in the correspondence of Dr. Siemens with the French company administering the Martin (French) patents, and nothing in the resolutions of Prof. Tunner, which you quote, affects the claims of the American patent, under which we are granting licenses for the manufacture of open-hearth steel, since these claims are not referred to in the said correspondence or resolutions. Yours, respectfully,

COOPER. HEWITT & Co. We scarcely think that anything in our article of January 2d could be fairly construed as injurious to any one interested in the Martin patents in this country. The facts of the Siemens-Martin discussion, and the action of the Berg u. Hüttenmaennische Verein für Steiermark u. Kärnten thereon, were matters which the American iron trade have a perfect right to know all about, and no one will question their right to determine whether the causes which make the Martin patents worthless in France, affect the value of the American patent. No man wants to pay royalties or buy licenses unless he must, and Messrs. Cooper, Hewitt & Co. would be the last to demand such payment unjustly, or to desire the concealment of any information of interest to licensees. We print their letter with great pleasure, feeling sure it will interest all who use the open hearth pro-cess in this country, whether they found anything in our previous article to interest hem or not.

#### Contraction of English Credits, and the Effect on American Trade.

To sustain in full volume the great export novement in our foreign trade, demands ceaseless vigilance. Secretary Sherman's recent circular bearing on this topic, though somewhat general, and perhaps a trifle ambiguous, probably has a significance not fully understood at first. The special fact to be observed is the far-reaching effects of the present financial convulsion in Englandhow immediately it cripples the resources of our foreign customers the world over. The head of one of our most prominent mercantile firms, largely engaged in the export trade and doing a heavy commission business, speaks of the need of excessive caution. Through London they learn that business firms in South America are almost paralyzed by the sudden contraction of credits, which English manufacturers are compelled to enforce. As a case in point, it is mentioned that four importing houses in Rio de Janeiro charged off, in the month of September, no less than \$1,500,000 of losses, all of recent occurrence in their business, directly attributable to the reaction thus brought about. It is common among traders who replenish their stocks in England, to get nine nonths' credit and an extension of say six months more by paying 21/2 per cent., so that the man in Rio, for instance, who receives 10 per cent. profit from his local customer, can go on indefinitely and prosper. It is notorious that most of the cash purchases made in the United States by merchants from abroad, have been on the strength of credits thus obtained. We hear it intimated, therefore, pending the adjustment of difficulties in England, that our exporting merchants will, if wise, not rely on the expectation of remittances "on receipt of documents" by foreign clients, lest the latter find themselves without ability to comply. The English joint stock banks, in competing for business, extended the credit system beyond all bounds, and at last pay day has come.

The establishment of a new steam line from New York for freights exclusively, under the auspices of the New York Central Railroad Company, is an event of importance. The service will be to Liverpool, Hamburg, Antwerp, Havre and such other ports as cargoes may be obtained for. Already 14 iron screw steamships have been chartered, some of which have arrived, and others are now on the way to New York. It is further stated that the Central Railroad Company will charge neither wharfage nor elevator fees, making a large saving over other cities and steamship lines in the cost of transportation. This may hurt competing cities, but it will be to the interest of Western producers and forwarders, as well as to New York exporters.

The death of Morton McMichael, of Philadelphia, will be widely regretted. For many years he has been prominently before the public as a journalist, a politician, and an enterprising, public-spirited citizen. In every walk of life he has won and retained the confidence and respect of all classes, and his death, at a ripe old age, ends a life of great activity and usefulness.

A Year's Failures in Great Britain. —The number of business failures officially announced in the Kingdom of Great Britain and Ireland during the year 1878, has been 15,059, of which 2643 were in the financial and wholesale and manufacturing branches of trade, and 12,416 in retail trades, profes-

sional pursuits, builders, publicans, working classes, &c., against 2172 and 8850 under the respective headings in 1877, showing an increase of 4037 failures last year over the preceding year

#### Grips for Testing Metals.

To the Editor of The Iron Age—DEAR SIR: Being earnestly engaged in the manufacture of testing machines, which is now pretty generally known, anything concerning the testing of material of any kind attracts our attention immediately, wherever seen. The interesting and able paper of Mr. Percival Roberts, in your excellent journal of Dec. 5 (page 15), did not, therefore, escape our notice, especially as our name appeared in it. We naturally looked to see whether it was there for praise or censure. It happened to be for both. With the first we were, of course, very much pleased; with the latter we felt we were condemned without just cause, or at least the fault he finds is not our fault, and we hasten to explain, both to our good To the Editor of The Iron Age-Dear Sir

at least the fault he finds is not our fault, and we hasten to explain, both to our good friend and the public generally, who have heard and read his article.

We are fully aware that the wedge-gripping apparatus he refers to, is not the best method of holding or grasping specimens in testing, and we would not make them if not compelled to by the purchaser, who demands cheap methods. Everyone knows who has had much to do with testing, that to make "headed" specimens is a very expensive thing, especially when a great number of tests are made daily or weekly, and the manufacturers would have to be contented with but few comparisons, instead of the with but few comparisons, instead of the many that can be made by using the wedge

many that can be made by using the wedge grip, and placing therein pieces cut from the bar without any preparation whatever.

Now, although we admit that the holding tools requiring the "headed" specimens are no doubt the best, still, we are not prepared to condemn the wedge grips as unfit for use, for they are almost indispensable in some cases for band iron, wire, leather and many other pliable articles. In testing wrought iron, whether round or square, they answer their purpose well, and in our opinion, and in the opinion of many experts with whom we the opinion of many experts with whom we have conversed upon the subject, the differ-ence is not very great, if at all noteworthy. If the machine is so constructed as to give a straight pull, as ours are made to do, and the wedges and specimen placed properly, a reliable test can be made.

It is our intention, at some future time, to make a series of experimental tests of specimens prepared in different ways, which will give us the desired information. Brittle metals require the greatest care in preparation—the least side strain affects them—but ductile metals like iron, brass or lead, accommodate themselves to any slight deviation from a straight line at first. The mere settling of the ends of specimens in the grips and the alignment of the apparatus, are not sufficient to tax the piece unfairly, or de-tract from its limit of elasticity (the safe strength of material used in bridge build-

ing, &c.)
We would take the opportunity to mention that we are now building a machine for the Pennsylvania Railroad Company, which will have tools for testing in various ways, which goes to show that we only want the orders to make holders to suit any taste, and that to make holders to suit any taste, and that we are not wedded to the wedge-grip sys-tem, but have only adopted it because we could not find a cheaper or better way to hold specimens to suit the purchaser. The machine in question is one of our latest im-proved—a design of our superintendent— and is worth examining. It will be on inspection for a few days, and all who are interested in such things are invited to inspect it at our works, Ninth street, above Master.

laster.
This machine is capable of testing specimens of any material, up to 50 tons. It is constructed to work by hand or power, has hydraulic pump and screw arrangement, for holding strain for any length of time. The pumps have three plungers, with variable stroke and under instant control. It has a wide range for experimenting, will take in specimens for tensile strain from 1 to 4 feet, crushing 4 feet, and transverse from 12 inches to any desired length. We believe it will be the most complete machine to be found anywhere. We are prepared to contract for machines as large as wanted-a million pounds or more-and are willing to undertake its completion in a given time. Ten years' experience (it is that time since we first began to manufacture testing machines and to agitate the subject extensively. through the press and privately) has given us

an advantage, we think.

One word more about the wedge grips.

With all their faults they have been of great use, so much so that without them a great amount of information would have been de ferred indefinitely. The one item of boiler-plate inspection has been of great importance, although the wedge is the worst form for holding plate; yet if placed in the ma-chine with great care, by relieving the edges and having the center a little higher, a very fair and reliable test results. Our first ma-chines were provided with a holder, with bolts, nuts and side sleeves, giving a perfectly straight pull, but specimens had to be made larger at each end, with holes in them, and it took so much material and drilling, that they were sent back and exchanged for

the wedge grips.

Hoping we have fully explained our position, we are, very respectfully, RIEHLE BROS. PHILADELPHIA.

The Chinese Treaty Question.-The Chinese immigration question was discussed at the Cabinet meeting on the 3d inst., and resulted in its reference to the Secretary of State for correspondence with the Chinese Embassy, with a view to the modification of the Burlingame treaty. It is understood that there is a division of sentiment in the Cabinet upon this question, some members favoring the abrogation of the treaty, and others favoring modifications by which the number of immigrants from China may be limited. It is known that the Chinese government will resist any offer to modify the treaty, but will not formally object to its abrogation should the United States insist upon that course. The Burlingame treaty treaty, but will not formally object to its abrogation should the United States insist upon that course. The Burlingame treaty contains no provision for its abrogation, but should this government decide to ignore it. Mechanical Engineering in the Stevalis Institute.

History of the Steam Engine. II.

During the latter half of the last century the modern steam engine may be said to have reached its present forms. The cylinder and piston, with the piston rod and der and piston, with the piston rod and crank, were then well known, and used practically as they are to-day. The low-pressure engine had received the separate condenser in its present form, and although condenser in its present form, and although not until the atmospheric engine was used for producing a rotary motion, was applied to the work of turning a shaft. The number of engineers and inventors who were then busy with the problem of producing power by the use of steam, was very large. The success which they attained was not, in general, at all in proportion to the value of their mechanical achievements, but depended entirely upon the individual market which presented itself to them. In America there were several attempts at engine building for various purposes. All of them, so ing for various purposes. All of them, so far as the engines were concerned, seem to far as the engines were concerned, seem to have been successful. One of the earliest was that of William Henry, who built a steamer at Lancaster, Pa., in 1763, after his return from England. In commenting upon this, Professor Thurston says his attention was called to Watt's invention, which was at that time the theme of discussion in all circles and eithough he does which was at that time the time the discussion in all circles; and, although he does not say it in so many words, leaves the reader to suppose that Henry obtained his ideas from seeing or hearing of Watt's engines. When we come to compare dates, we think this is entirely a mistake, for so far as we can gather from the dates given by Professor Thurston's book, Watt did not make his experiments and invention of the experiments and invention of the separate condenser until 1761,\* and his first experimental engine, with its 6-inch cylinder, was not completed until 1765, some two years after Mr. Henry built and set his en gine at work, at Lancaster, Pa. So far as we can see, Mr. Henry's title to fame as the originator, or father, of the steamengine, is as good as that of Watt. It was not until 1768 that an engine was built which worked well enough to make Boulton & Watt think it worth while to take out atent.

Henry's engine was put into a boat, and drove a pair of paddle-wheels. This engine, like those of Rumsey, James Fitch and Oliver Evans, seems to have been of the highpressure class. The boldness and originality of the American mind was strikingly dis-played in the way in which these early in-ventors attacked the problem of utilizing steam, and in every instance they chose to make use of its elasticity, and employed pressures which would be considered respect-able practice at the present day. Oliver Evans attempted to supply an en-

Oliver Evans attempted to supply an engine suitable for propelling vessels on our inland waters. He was, it seems, much in advance of his time; and, although his engine could have been successfully used for this purpose, and was so used in one or two instances, there was no demand for steamers, since there was nothing for them to do. there was, however, a great need for power to drive grist mills, and his engines found a ready sale for this purpose. Indeed, it is a matter of history, that one of his engines, intended for a boat on the Mississippi, and sent to New Orleans, was put to work at sawing lumber while the boat was building. It was very successful at this, and was never set afloat. But the demand for mill engines was limited, hence Evans never attained the success of some other engine builders. Evans worked on a somewhat original plan. He did not attempt to make use of the atmospheric pressure, nor of a vacuum, but boldly employed the elasticity of steam, and worked with pressures which, as we have said, would be considered re as we have said, would be considered respectable at the present day. In England, a number of inventors struggled with the problem of the steam engine, both high and low pressure, but in most instances they low pressure, but in most instances they were aiming to supply wants which only existed in their own imagination. In France, as far back as 1770, Nicholas Joseph Cugnot built a steam carriage having 13-inch cylinders. This engine, which was the second or third of the kind constructed by him, was defective only in the want of beiler rower. The steering in the want of boiler power. The steering gear was somewhat sluggish, but as a highpressure engine, nothing was lacking, and the workmanship of the machine, still pre-served in the Conservatoire des Artes et Métiers, Paris, is very creditable. No suc-cess was possible in this line, however, because such a machine could not have been put to any commercial use at that time. It put to any commercial use at that time. It was designed by the constructor to haul heavy artillery, a service which would have hardly brought fame or fortune in those days of bad roads. The world's work at the time of which we write consisted almost ex-clusively of water raising in some form. Hence, to be successful, it was necessary that the inventor should devote himself to the manufacture of steam pumps. It was to this work that James Watt turned his atten-tion after his invention of the separate condenser, and it was to this that his keen business partners, Dr. Roebuck, and afterward Mr. Boulton, carefully kept his attention constantly devoted. Hence his success. He was the fortunate inventor, who han pened to be in the right place at the right time, and who fell in with strong business men with capital, who kept him in the successful track. Glancing over the pagest devoted to James Watt and his achievements, we are impressed we are impressed in a way very different, we imagine, from that which the author intended; for we think that it will occur to every candid and thoughtful person, upon reading the work, as it did to us, that James Watt was a greatly overestimated man. It would seem that during the period man. It would seem that during the pe of his greatest mental activity, there no important mechanical invention made in England which he did not at once, and

boldly, claim as his own; and, surrounded \* Chambers's Cyclopædia says that "it was not until the winter of 1763-64 that he bagan the in-

the Chinese government would be forced to as he was with powerful admirers and have ing command of large capital, in most cases his claims, even in the face of the clearest evidence, were allowed. As a steam-pump builder he was at the head of all competitors; as the inventor of separate condensa-tion he deserves a vast amount of credit; but titis hard to find, even from the most partial statements, that he contributed more than many other engineers to the success of the rotative engine. Other men sowed and he, in the fullness of time, entered into their

Although, as compared with James Watt,
Col. John Stevens, of Hoboken, receives but
meager attention, his works and the mechanical revolutions which he practically bechancal revolutions which he practically begun, place him far higher in the ranks of inventors than Watt. Col. Stevens was some 50 years ahead of his time, yet in spite of this disadvantage he accomplished results and laid the foundation for others, the importance of which can hardly be overesti-mated. Had his life marked an epoch, instead of falling as it were between times, it seems very probable that he would have worn honors now given to others. His foresight in re-gard to the steam engine, as expressed in his letters and other writings, now read like

In England, Jonathan Hornblower, William Bull and Richard Trevethick showed a vast deal of inventive genius and accompliched great results, when we consider the disadvantages under which they labored. If they had had Watt's powerful friends and partners, and been first as steam-pump builders, doubtless the history would have remained much the same as at present, but the names at the head of the list would have been very different. It is only when we take into account the influence that circumstance has upon men's success, that we can esti-mate the relative greatness of the men as men or inventors.

Toward the close of the last century, there Toward the close of the last century, there began to be a demand in England for power for other purposes than that of pumping water. Smeaton, we believe, was the first to put up a rotative low-pressure engine. This was of the old atmospheric type, and it was a long time before Watt attempted the same thing. For a time Smeaton's engines were superior in economy to those built by Watt, and to this rivalry doubtless is due the rapidly increasing economy in the duty of Watt's early pumps.

The first steam engine, as distinguished The first steam engine, as distinguished from a steam pump, built by Watt, to produce a rotary motion, was the famous pair put up for the Albion mills. Mills and engines proved a failure, and after sinking many thousands of pounds, they took fire, after six years of serious losses, and burned to the ground. The establishment of Boulton & Watt had several great advantages. Boulton was one of the best business men of his day. While possessing all the qualifications for an ordinary commercial success, he had the immense advantage of being first in had the immense advantage of being first in a vast field, and by his foresight and business tact, kept the field practically to himself for ome 25 or 30 years.

Although the steam engine, in its modern Although the steam engine, in its modern form, had been perfected early in the last century, and most of the modern improve-ments had been suggested, it was not until the expiration of the Watt patents in 1800, and the dawn of a new era in manufacturing, that a marked progress began to facturing, that a marked progress began to be felt in the application and improvement of the modern form of the steam engine. With the year 1800 began the second period of application and development of the modern steam engine. In England the experiences with the Savary engines and their weak boilers, together with the success of the atmospheric and low-pressure engines, naturally inclined the public, and inventors as well, toward the low-pressure engine, in which 6 or 7 pounds low-pressure engine, in which 6 or 7 pounds low-pressure engine, in which 6 or 7 pounds was the greatest pressure used, and with which a negative pressure in the boiler was not so uncommon as to be a novelty. In America, on the other hand, with the characteristic boldness of the people, high-pressures were at once recognized, both as desirable and possible, and high-pressure engines were adopted as the best means for the product. duction of power. To-day America can almost claim the high-pressure, or non-condensing engine, as distinctively her own Certain it is, she has done more toward de veloping its possibilities than any other nation, and, in proportion to the total number of steam engines she uses, has more of them than any other.

In England, the year 1800 was marked by the expiration of all the essential steam engine patents of Boulton & Watt, and the manufacture of the steam engine was free to the world. Just at this time, power became an industrial necessity. Animal power, even in those cases where it could be employed, was too costly; water powers were already well improved; consequently, the field for manufacturers of engines was ready. Watt retired at the begin-ning of the century from active business life. Boulton still continued, but his monopoly was gone, and his business ability was not equal to the task of retaining his position against the tremendous odds. New engine-building establishments sprang up all over the kingdom. There were great number of failures, and many steam engine was set up which was a steam scarcely able to do more than turn its shaft and work its own air pump. But the world was gaining experience, and mechanics were gaining skill. It must be remembered that in the days of which we write, a slide-rest turning lathe, or a screw-cutting lathe, were practically unknown, and that planers and machine tools in general were scarcely more than names. Indeed, a good mechanic today could go into a blacksmith shop of the better class, and, getting his castings from a foundry, build an engine far easier, and more accurately, than was possible 79 years ago. Until one examines the mechanical works of that time, he can hardly conceive with what rough and imperfect tools engines were built.

First after pumping, English and Conti-cental inventors turned their attention to nental inventors turned their attention to-ward the production of steam carriages, or this want very successfully, and for many

years was the leading builder of steam engines in America. In 1804, Evans built a steam dredging machine for the city of Philadelphia, and, to prove its capabilities, mounted it upon wheels, and, connecting these with its own engine, drove from the works up Market street, around to the water works, and then launched it into the Schuyl-kill. The engine drove the dredging boat by means of a paddle in the stern. Evans was not the first to demonstrate the fact that a steam engine could be made to drive itself upon land, but the experiment helped to establish the certainty of the fact in the public mind. Evans narrowly escaped being, in a sense, the father of the Mississippi steamboat. He built an engine, intended for a boat which was to be built at New Orleans, as we have already mentioned, but low water in the river, and financial com-plications, prevented the construction of the boat, and the engine was set up driving a saw mill, where it proved very successful. Evans has hardly been appreciated in this country, but, from all that has been written, it seems safe to, say that he revolutionized it seems safe to say that he revolutionized the arts of the miller and millwright.

The least known, but mechanically most The least known, but mechanically most successful, applications of the steam engine during the early part of the century, was to the propulsion of carriages upon common roads. And we may say that, until utterly defeated by external causes, the steam carriage was the most successful financially.

From the time of Cugnot's steam carriage

or traction engine, in 1770, to 1822, there

had been almost a continuous line of experimenters and inventors. At that time (1822), Mr. Goldsworthy Gurney took up the subject, which ended in the first suc-cessful steam carriage, some five years later. This was not, however, the first steam carriage that took a long journey under steam. In 1803, Trevethick built a full-size machine, which, on its way to London, was driven from Camborne to Plymouth, a distance of go miles. by its own engines. Gurney's first machine was driven by mechanical legs. In spite of this unmechanical device, it made long journeys, on one occasion making statements. This was not however the first steam car. long journeys, on one occasion making 85 miles in 10 hours, including all stops. The next year he built a steam passenger coach, which was not only creditable and success-ful from a mechanical point of view, but, if we remember rightly, was a source of in-come for a time to the owner. The boiler was a tubular sectional, the first of the kind built, and carried 70 pounds of steam. A reversing link motion was provided, the draft was forced by a blower, and several very important mechanical features were well worked out. Walter Hancock was the well worked out. Walter Hancock was the next who accomplished anything worthy in this line. In 1831, there were a great number of steam carriages under construction for different gentlemen and firms. Sir Charles Dance, the same season, placed one of these carriages, of whose design we know but little, on a regular line between Cheltenham and Gloucester, where, in four months, it ran 3500 miles, carrying 3000 people, making a distance of nine miles in from 45 to 55 minutes. Messrs. Ogle & Summers' carriage attained a speed of from 32 to 35 miles per attained a speed of from 32 to 35 miles per hour, and, like the other carriages, met with no accident until they were driven off from the roads, as we shall explain. This carriage, on a rising grade, made 24½ miles per age, on a rising grade, made 24/2 limbs perhour. Many other successful coaches were running in and about London, carrying from 11 to 20 passengers. Many of the companies for whom carriages were built, were unsuccessful, probably from want of were unsuccessful, probably from want of business management, rather than from any fault in the carriages. The speeds ranged from 9 to 12 miles per hour when loaded. These coaches, or carriages, passed through the crowded streets of London with perfect ease, and did not frighten the horses nor discommode pedestrians. In 1835, Hancock built a coach called the "Erin," which could carry 20 persons. It towed three combuses carry 20 persons. It towed three omnibuses and a stage coach with 50 passengers. On level ground it made 10 miles per hour, and with lighter loads made a greater speed. In 1836, all Hancock's carriages were put on 1836, all Hancock's carriages were put on to the Paddington road, running regular trips for five months. Some 712 trips were made in the time, 4200 miles run, and they passed through the city 200 times. The average running time was 5 hours 17 or 18 minutes. Altogether, Hancock built nine steam carriages, capable of carrying 119 passengers besides attendants. In 1833, 20 carriages were running in and about London. They had attained a speed of 15 miles hav had attain per hour, in some cases, on up grades of one in twelve, and one had kept up a speed of 30 miles per hour for 4½ hours. A magnifi-cent success seemed assured. A surprising degree of perfection had been attained in the short space of five years. A committee of the House of Commons came to the fol-

lowing conclusions:

1. That carriages can be propelled by steam on common roads at an average rate of 10 miles per hour. 2. That at this rate they have conveyed

upward of 14 passengers.
3. That their weight, including engine, fuel, water and attendants, may be under 3

4. That they can ascend and descend hills of considerable inclination, with facility and safety.
5. That they are perfectly safe for pas-

sengers 6. That they are not (or need not be, if properly constructed) nuisances public.

7. That they will become a speedier and cheaper mode of conveyance than carriages drawn by horses.

roads are not acted on so injuriously as by the feet of horses in common draft, such carriages will cause less wear of roads than coaches drawn by horses.

g. That rates of tell have been imposed

upon steam carriages which would prohibit their being used on several lines of road, were such charges permitted to remain un-

In the face of such facts, the reader natu locomotives. In this country, the earliest demand for power was for driving mills.

Oliver Evans, with his high-pressure "Columbian" engine, as he called it supplied can be made to run on common roads or pave and much more rapid and convenient, that ments, and whether it will not frighten horses | the permanganase,

and be a nuisance from smoke and dust? The answer is, steam carriages were crushed out of existence by a powerful enemy, not, as might be supposed, the coaching or horse interest, but by the railroad companies, who found themselves at a stand from the opposiof found themselves at a stand from the opposi-tion of property owners. The argument-used was that railways were unnecessary, as steam coaches traveled as fast as railway trains and were much more convenient. To kill the steam coaches was their only hope. Frightful tolls were imposed when it was possible. Bills, in some instances, being pushed through Parliament for the purpose by the railroad interest. The only accidents that happened were caused by spreadtbat happened were caused by spreading 18 inches of broken stone on turnpikes under pretense of mending them, but really to break down the steamers. Hancock broke one or two driving axles and then withdrew. Others were driven off by the tolls, which were frequently equal to the whole fare of the passengers. It was a fight of great corporations against individuals, and the corporations won. The methods taken were dastardly, and the reader grows indignant at reading of the destruction of such a promising field of enterprise, which might have been a valuable and profitable aid to the railroads if it had been rightly encourthat happened were caused by spreading 18 inches of broken stone on turnto the railroads if it had been rightly encouraged. The two or three years' war which was then waged against steam carriages has delayed progress in that direction for fifty years, and it will be many years to come before engineers and the public will again turn-their attention toward steam carriages.

As "feeders" to a railway, in a country where good roads abound, steam carriage lines could be made invaluable, and in many instances could be made invaluable, and in many instances could be made to take the place of costly lines of lateral roads, which are usu-ally expensive luxuries for the corporations maintaining them.

#### Metallurgical Notes.

ANALYSES OF BESSEMER AND OPEN-HEARTH STEEL FROM DIFFERENT PERIODS OF THE

Some interesting results of analyses made of products of the different periods of the Bessemer and open-hearth process, were made from Reschitza for the Paris Exhibition, to show the gradual elimination of

	manganese and silicon :	
r	Bessemer Process.	
е	Manganese.	Silicon.
1.	rst period 1.3302	0.9150
е	2d	0.3360
d	End of operation 0.1892 Open-hearth Process.	0.0443
0	Manganese.	Silicon.
0	Pig 1.0833	C.7595
V	After 1st charge wrt. iron 0.2037	0.1073
t	" ad " " 0.0336	0.0303
-	" 3d " " 0.0342	0.0163
n	4th 4 4 0.0306	0.0187
r	End of operation o.0883	8010,0
е	A high temperature seems, therefo	re, to be
V	favorable to the retention of sili	con and
-	manganese. The amounts remain	
,	smallest in the hearth, greater in	
-	dling furnace, they increase in the l	
5	converter (using charcoal pig direc	etly from
8	the furnace), and, finally, are most	consider -
_ 1	11 1 11 11	

wrought iron. COMBINATIONS OF THE BESSEMER AND THE OPEN-HEARTH PROCESS

able in the gas reverberatory furnace, if its temperature is decreased by the additions of

Austrian works combine the Besse Some Austrian works combine the Bessemer and the open-hearth steel processes for the manufacture of special grades of steel. Thus, at Neuberg, so-called "refined Bessemer steel" is made by decarbonizing in the converter, and by bringing the blow into an open-hearth steel furnace before the addition of spiegel. It is in the latter furnace that the process is finished. Quite an opposite course has been adopted at Ternitz for making rail steel. There the pig is at first treated in the open-hearth furnace by first treated in the open-hearth furnace by additions of steel scrap, then it is blown in a converter, when the product is finished in the regular way. An analysis of the latter steel vielded:

Boot Jiouda .	
Carbon	 0.401
Silicon	 0.030
Sulphur	 0.047
Phosphorus	 0.004
Copper	 0.022
Manganoso	

Mr. T. T. Morrell, chemist of the Cambria Iron Works, contributes to the Bulletin of the American Iron and Steel Asso-ciation, the following description of a method for estimating iron ores: For the determination of iron in ores, dissolve in as little hydrochloric acid as possible 0.200 grams of the ore, and filter from any insoluble matter. If any of the iron exists as protochloride, add permanganate of potassa until all is changed to sesquichloride, and boil until every trace of free chlorine is ex-pelled. Transfer to a flask holding 150 or 200 cubic centimeters, dilute to 60 or 70 cubic centimeters, and cool. Now close the flask with a rubber stopple, through which pass a tube for the admission of cid, and one for the escape of the air. When the flask above the liquid is entirely filled with carbonic acid, throw in about grams of pure potassic iodide, shaking he flask gently to promote solution. In two or three minutes, when the iron has become entirely reduced, run in 20 or 25 grams of pure mercury, which has been carefully weighed. As a little air may have been admitted by the removal of the stopple, the stream of carbonic acid should be continued through the flask for some time longer, when the tubes may be closed with rubber caps.

The dark colored solution is gradually decolorized by the mercury, and the contents of the flask should be constantly agitated. of tire than other carriages, and as the the mercury into small claim, to separate the mercury into small globules and prote this action. When the solution comes colorless, pour it off, and rinse the mercury several times with distilled water. Finally, transfer the mercury to a small por-celain crucible, dry it with bits of filter paper, and weigh. From the loss of weight of mercury, calculate the amount of iron: 100 of mercury—56 of iron. If an acid-ulated solution of the protassic iodide used yields any color after standing 30 minutes rally asks, how came it to pass that this in an atmosphere of carbonic acid, the depromising application of the steam engine has been so completely forgotten, that

To-day there is a better, more hopeful feeling pervading our community than when 1878 began. There is a prospect that nearly all our industries will be more fully

employed the coming year than last.

The production of pig metal in 1878, in this county, was 34,000 tons. This is nearly 6000 tons less than in 1877. The downfall of Ætna, in February last, is the cause of this difference. Alice ran only 55 days of the past year. the past year. Sarah furnace, however, came, in 1878, with a big production. Of our 16 furnaces, all were more or less in blast last year, excepting Grant, Center, Iron and Steel, Ætna and Vesuvius. Of the 34,900 tons made, 17,000 tons were stone-coal iron, 7500 tons charcoal cold-blast and 10,400 charcoal hot-blast. During the year, there has been a slight accumulation of hot-blast irons, and a decrease of cold-blast. blast froms, and a decrease of cold-blast. Belfont furnace ran 203 days the past year, and Sarah furnace about the same time. The year has been a severe one for the furnacemen, but all things considered, there is really a better feeling among them than there was a year ago. The coming year will, doubtless, record more furnaces in blast then in year than in 1878.

Ironton lost entirely one factor of her

iron industry last year—the Iron and Steel mill. In 1877, taking the number of days' runs of all the mills and striking an average, it was 193 days for each mill. In 1878, with two mills in operation, the average days' run were greater, being 215 days for the two mills, Lawrence and Belfont, in 1878, against 193 days for the three

The Belfont mill was in operation 246 days last year. In that time the produc-tion was 167,834 kegs of nails, about 100,-000 of which were made in the past six

The Lawrence mill ran as follows: Forge The Lawrence mill ran as follows: Forge, 138 days; bar mill, 184 days; guide mill, 148 days; hoop mill, 148 days. The average, which is the number of days of full operation, was 154½ days. During the year, the mill turned out 3046 net tons iron, and used 269,946 bushels of coal.

The year closed with a somewhat more

The year closed with a somewhat more hopeful feeling than was felt at the close of

1877.
Lambert & Gordon's shop ran 296 days during 1878, and in the foundry melted 341 tons of metal.

[From the New Haven Daily Morning Journal and Courier, Jan. 3, 1879.]

#### A NEW YEAR'S JUBILEE.

An Entertainment to Over One Thousand Employees-Mr. J. B. Sargent's Happy New Year to His Help-Great Decimatio of Turkeys and a Cargo of Other Choice Edibles—Joyous Faces and Happy Hands
—A Fine House-Warming.

One of the most interesting New Year's events in a long time, of a local nature, was the entertaining by J. B. Sargent, Esq., of the employees of Sargent & Co., at his elegant residence, corner of Elm and Church streets. The reception lasted from 7 till 10 p. m. As 7 o'clock was struck by the City Hall bell, the mansion, brilliant with light in every one of its many windows, began to receive its guests, who were ushered in by selected men from their own number, some thirty-three in all on duty. Admirable music from a fine orchestra greeted the ear or entering. In the beautiful parlors Mr. and Mrs. Sargent received the visitors, and after the pleasant greetings, the throngs began to thread the halls and pass about the premises, returning to the large dining-room, where at least one hundred and fifty, and some estimated two hundred, could dine at one time The sight the great table presented was enough to drive an epicure into expression of delight, and make an ascetic sigh for some other profession. Gracing the center of the feast was a beautiful epergne, lader with the cheicest flowers, natives and exotics, while the celebrated New Haven caterer, Mr. John Redcliffe, with a corps of 37 assistants, including waiters, drivers of the commissary wagens, female help and others, was supplying the gaps made in the kept the ice cream pyramids, castles, towers, equestrian pieces and other forms of the de-lectable compound, and other supplies of choice eatables, pouring in. There were over half a ton of turkey, a hogshead of opened oysters, a hogshead of lemonade, another of coffee, a cart load of cake and 3,000 biscuit, and no end of oranges, apples 3,000 biscuit, and no end of oranges, apples and confectionery, and there were 12. persons in the attack. The residence, in the full beauty of new and elegant woodwork finishing and furniture, was, from top to bottom, freely thrown open for the occasion. On leaving for the evening and in passing out, each person was given a package filled with bon-bons for the little ones at home. There were eight or ten brimming wagon loads of these supplied. Nothing was left undone to add to the comfort of the guests. The married men had an invitation to bring their wives, many of whom were in the their wives, many of whom were in the happy throngs. A "good time" was enjoyed by all. Outside the house, throngs of the workmen occupied the walks, waiting for comrades to walk home, and talking over the reception with the utmost satisfaction. Nothing finer of the kind in its quality. tion. Nothing finer of the kind in its quality than the spread afforded could be found in New York or Boston, and so much remained that a fine treat was dispatched to the Home of the Friendless, and another to the St. Francis Orphan Asylum, in the latter being about 300 bags of choice edibles, besides a about 300 bags of choice edibles, besides a very handsome donation of turkeys. The several night watchmen of the Sargent manufactory who could not be spared from their duties were remembered, each with a fine turkey yesterday. The workmen will long remember with pleasure the happy affair.

Sargent & Co.'s may justly be considered one of the most important business interests

The Situation in the Ironton (Ohio)

District.

The Ironton Register discusses local matters as follows:

To-day there is a better, more hopeful

The Situation in the Ironton (Ohio)

be erected speedily, being called for by the need of still more room for storage and packing purposes. The other, which will be erected later, will be a still further addition to the number of foundry buildings. The extent of the establishment is seen from the fact that the mace accounted by the flooring. fact that the space occupied by the flooring is equal to a field of fully seven acres in extent. Several very large and noticeable buildings were erected in the past year. The concern, it may also interest the leading public to know, manufacture no less than 7000 different articles of hardware. than 7000 different articles of hardware. Its new office is one of the largest in New England, and is handsomely finished in Southern pine and other woods, and is provided with every convenience and accommodation. It includes, besides the private office of Mr. Sargent, a general public business office, superintendent's office, and the departments for the purchase of materials and supplies: the reversal clerks the cost departments for the purchase of materials and supplies; the pay-roll clerks, the cost clerks, the New York, Southern and Western entry clerks, foreign entry clerks, New England and British provinces business, the bookkeepers and the cashier. The subdivision of these stations is now being completed. The limits of our space to-day forbid a general inspection of the establishment in all its ramifications of establishment in all its ramifications of business, its wilderness of light and heavy business, its wilderness of light and heavy machinery, and scores of extensive work-rooms. This concern has converted unimproved ground and the waste water front into a place teeming with industry, all of which has been done in the past 15 years, Mr. Sargent locating in this city 15 years ago. About 100 employees of the concern in New York city, at the wholesale house, were not overlooked in the invitation to the dinner, but, owing to the distance, the kind offer could not generally be accepted. offer could not generally be accepted.

> A schooner which arrived in New York from Para, last week, brought seven men who had been engaged in building the Mamore and Madeira Railroad in Brazil. The fever compelled them to leave the country, and they report that it is now demonstrated that only negroes or Chinamen can be profitably employed in the enterprise. Only four miles of road were completed when they left. The laborers who went out have mostly left, and natives are being employed to better advantage. This enteremployed to better advantage. This enter prise has been quite unfortunate.

#### Special Notice.

#### Partner Wanted.

with \$30.000 to \$50,000, to take the place of a member retiring from a New York Jobbing Hardware and Cutlery House, whose business relations with all parts of the United States are extensive, of long standing and of a desirable nature. A party identified with hardware or cutlery interests, and who would take an active part, would be preferred. Please address communications to H. F. E., Office of New York Journal of Commerce.

#### To Let.

A Vacant 4-story and basement Brick Factory,

45x96, with 75 Horse-Power Engine, all in com plete order, with vacant lot adjoining; shafting and pulley on each floor.

Cor 1st and N. 3d Sts., Brooklyn, E. D. Inquire of

H. C. RICHARDSON. 59 & 61 Grand St., Brooklyn, E. D.

TOR SALE OR TO LEASE — Factory property at Elizabethport, N. J., comprising carting, annealing, tumbling and finishing shops; also eugine and boiler and tools to make saddlery hardware or other malleable iron goods.
P. BALEN, & Broad St., New York.

JOHN C. WILMERDING, Auctioneer

#### AUCTION NOTICE.

Peremptory Sale of the entire Manufacture Stock of the "Coles Universal Feed Sewing Machine Co.," with

Braiding Attachment, Wilmerding, Hoguet & Co.,

On Tuesday, January 21st, 1879, 1034 a. m., At No. 416 West 14th St., New York City Also 3057 shares, the controlling interest in the "Coles Universal Feed Sewing Machine Co.;" all the foreign patent rights; all the special tools, being upwards of 1202; all the machinery, in perfect condition, made by Brown & Sharpe, Pratt & Whitney, and other first-class machinists.

Catalogues and all information may be had now and until day of sale, of Wilmendiro, Hodurf & Co., 64 White St., or of S. W. JOHNSON, 446 West 14th St., where the property is ready for examination.

EXCHANGE.

Will exchange for stock of hardware, a fine farm of 277 acres in Loudoun Co., Va., on W. & O. R. R., 28 miles from Washington, having a large, commodious house, barn and out buildings, all new; sixty acres good oak timber, balance meadow, pasture and tillage; stream of running water, 40 assorted fruit trees (all grafted), 120 bearing grape vines, small fruits, &c. Address J. M. H., 1620 10th St., N. W., Washington, D. C.

For Sale.

The constantly increasing demand for Wheat Drills and other goods of my manufacture, compels me to give my whole attention to my factory; hence I offer for sale my (controlling) interest in the Wholesale Hardware Business of Oper & Anderson, in Indiana, This house has the best custom in the city, and its business is steadily increasing. Not a large capital required. For particulars correspond with EWALD OVER, Indianapolis, Ind.

MANAGER.—A GENTLEMAN OF THIRTY.

Manager.—A Gentleman of Thirty.

Manager.—A Gentleman of Contingencies beyond the control of himself or the proprietors, wishes a new engagement. He is well up in metallurgy as a science, has had eight years' experience as practical manager in Sfeel Works and has been very successful in handling men. Address

M. W. T.,

Scottand, Pa.

### FOR SALE,

A one-half interest in an old-established Foundry and Machine Works, capable of doing a busines of the city, and extensive as is the establishment of the concern, it is to be still further enlarged by the erection of new and important buildings. Plans have just been completed for one or both of them—one to Office of The Iron Age, 83 Reade St., New York. Special Notices.

### Special Announcement

### SECOND-HAND AND NEW TOOLS

FOR SALE.

The Tools in the following list are all of Wood, Lighte & Co.'s make, have been used, but are all in good order and will be sold low

Five Engine Lathes, 15 in, swing 6 ft. bed.
Six Engine Lathes, 20 in swing 7 ft. bed.
Five Engine Lathes, 20 in swing 7 ft ft. bed.
Five Engine Lathes, 20 in swing, 8 ft. bed.
One Engine Lathe, 21 in. swing 6 ft. bed.
One Engine Lathe, 21 in. swing 16 ft. bed.
One Engine Lathe, 24 in. swing 16 ft. bed.
One Engine Lathe, 24 in. swing 12 ft. bed.
One Engine Lathe, 26 in. swing 12 ft. bed.
Two Upright Drills, 27 in. swing, not geared.
One Upright Drill, 22 in. swing, not geared.
One Upright Drill, 32 in. swing, back geared and off feed.
One Figure 24 in. works.

elf feed.

One Planer, 24 in. x 23 in. x 4 ft.

One Planer, 24 in. x 24 in. x 4 ft.

Two Planers, 32 in. x 30 in. x 8 ft.

One Planers, 32 in. x 30 in. x 10 ft.

One Planer, 37 in. x 37 in. x 10 ft.

One Planer, 42 in. x 36 in. x 15 ft.

One Planer, 72 in. x 66 in. x 24 ft.

Oue Shaping Machine, 12 in. stroke.

Four Bof Cutters, x arious sizes.

Two No. 2 Milling Machines.

One Horizontal Boring Lathe.

The following are all new tools to be sold very low, and are all Wood, Lighte & Co.'s make:

make:

Two Engine Lathes, 13 in. swing, 5 ft. bed.
One Engine Lathes, 15 in. swing, 6 ft. bed.
Four Engine Lathes, 16 in. swing, 6 ft. bed.
Two Engine Lathes, 16 in. swing, 6 ft. bed.
One Engine Lathe, 26 in. swing, 20 ft. bed.
One Engine Lathe, 28 in. swing, 20 ft. bed.
Three Planers, 24 in. x 24 in. x 4 ft.
Two Planers, 24 in. x 24 in. x 5 ft.
One Planer, 36 in. x 13 ft.
Two Shaping Machines, 11 in. stroke.
One No. 1 Bolt Cutters.
Seven No. 2 Bolt Cutters.
One No. 1 Bolt Cutters, with centers.
Five No. 2 Bolt Cutters, with center.
One No. 1 Milling Machine.
For sale by the For sale by the

GEO. PLACE MACHINERY AGENCY, 121 Chambers and 103 Reade Sts.

#### Leigh's Tables of **Mercantile Discounts**

(5 % to 8234 % and all the combinations.) Arranged in three parts : I. Comparative Discounts.
II. Comparative Net Prices.
III. Computing Tables.

Parties desiring a reliable, comprehensive and practical work on compound discounts, are invited to examine the plan of this book. Specimens of the different parts will be mailed free upon application to the author at Nt. Louis. The book mailed postpaid to any address for \$1. Address

EDWARD B. LEIGH. St. Louis Elevator, St. Louis, Mo. Or either of the Publishers, viz: IVISON, BLAKEMAN, TAYLOR & CO., New York R. & T. A. ENNIS, St. Louis.

#### TO EXPORTERS.

A PRINTED LIST OF UPWARDS OF 3000 FOREIGN BUYERS

of American Goods, all of them in Good Standing, together with all the United States Consulates abroad, and rates of postage on printed matter to all countries. Now ready. Price \$5.
Address WM. ATKINS & CO.,
(P. O. Box 1145.) 14 John St., New York City.

#### A GENTLEMAN.

residing in London, England, now on a business journey in America, of large commercial experience in the United States, England, France, Italy, Egypt and Turkey, speaking French and Italian; well acquainted with the London buyers for the Cape, India, Australia and South America, is open to make arrangements for representing jointly three first-class American manufacturers in London. Unexceptionable references.

A B. H. S. Office of The Iron Age, 83 Reade St., New York.

THE COPARTNERSHIP HERETOFORE EXIST-ing under the firm name of Graef & Nevins, as been dissolved by mutual consent. Mr. Albert Graef will continue the business as

eretofore. New York, January 7, 1879.

WANTED—A position of any kind in a whole-sale hardware or manufacturing house, by a young man of eleven years' experience in one of the largest houses in New York, or would represent some out of town manufacturer in New York and vicinity, and sell goods to the trade on commission. Address

Office of The Iron Age, 83 Reade St., New York.

SITUATIO WANTED. — TIN AND
Sheet Iron Worker desires work; city or country; at the bench or counter.
Address CHAS. B. GARRISON,
Greenwood, Del.

A MAN OF LONG EXPERIENCE WITH ONE of the largest and best known houses in this city, desires a situation. Thoroughly conversant with Locks, Bronse and Builders' Hardware, Competent bookkeeper. Salary moderate. No chjection to leave city. Address HOWARD, Office of The Iron Age, 83 Reade St., New York.

TRAVELING SALESMAN.—A YOUNG man, thoroughly posted in hardware and all its branches, particularly cutlery, with several years' experience on the road, desires a position with a manufacturing, jobbing or importing house, where by close attention to business he can have a permanent position and make himself valuable to his employers. Address "MORRIS" permanent position and "MORRIS," his employers. Address "MORRIS," Office of *The Iron Age*, 8<sub>3</sub> Reade St., N. Y.

#### RUSSIA.

Advertiser, experienced in Machinery, especially agricultural, with a very large connection, seeks to REPRESENT A GOOD AMERICAN FIRM.

Address

JOHN E. GREAVES,
Berdlansk, S. Russia.

#### Special Notice.

The undersigned offer their services as Agents to makers of American Cabinet Hardware They keep a full line of UPHOLSTERERS' AND CABINET MAKERS' MATERIALS. LOUIS WINDMULLER & ROELKER, 20 Reads St., New York. Address in Frankfort-on-Main, Germany, ERWIN ROELKER.

#### **Hardware Business** For Sale.

in one of the best situations in Philadelphia, Pa. E., Address Office of The Iren Age, 83 Reade St., N. Y.

Special Notices. JENNINGS'S

#### COMBINATION DISCOUNT TABLES.

(Published by the author.)

(2% to 85% and all the combinations.)

The Discount or Net on any amount of dollars and cents, from a penny to one million dollars, can be ascertained in a few reconds entirely by **Addi**tion. Just the thing for making or proving invoices, finding Net Value of goods bought or sold, and comparing different Discounts, thereby saving time, blunders and Headwork.

Shows at a glance either the **Discount** or **Net** of \$1.00, with any combination. Contains Computing Tables for nearly five

times as many combinations as any other work published.

Is arranged so that the eye has no horizontal ines or columns to follow.

The number of **Bollars** or **Cents** and the Discount or Net of the same are seen at one glance. No **Decimal Points** to be changed in the mind.

READ! READ!

The first edition of 1000 copies cost nearly \$2.00 per volume, without allowing anything for the labors of the Author. Having electrotype plates of each page, the expense of second edition is

For the purpose of more quickly introducing the work, the publisher proposes, until further notice, to send a copy (Counting-House Edition, price, \$3.00), postpaid, to any address on receipt of

#### ONE DOLLAR.

In due time the price will be advanced so as to afford a moderate profit. Mer. hants, Manu-facturers, Stockkerpers and \*1erks now is your time. Send in your Dollar and receive the book by return mail. This book has a copious

#### INDEX.

which is more for convenience than necessity, and would not be referred to one time in twenty. Its principal use is to prevent confusion in finding combinations that are arranged in different orders; thus, the index shows that 25 and 7½ and 5 per cent. is found in the tables on page 12, under heading 25 and 5 and 7½ per cent.

Currency may be sent by mail at publisher's risk. Address

S. H. JENNINGS. Deep River, Conn

One 9-inch Train Rolls,
One 16-inch Train Rolls,
Both with Housings.
Two Steam Hammers,
One Pair Shears,
One Lot Steel I "got Moulds,
Three Large Woodward Steam
Pumps,
Three Small Steam Pumps,
Two Hoisting Engines,
Three Stram Bollers,
One Lighthall Condenser,
One Surface Condenser,
One Surface Condenser,
Deck Fumps, Low Pressure Gauges,
Registering Gauges, &c.,

FOR SALE LOW BY

DANIEL W. RICHARDS & CO., Dealers in

### Scrap Iron & Metals.

88 to 96 Mangin St., New York.

#### Foreign Houses

mporting American Goods, and desiring the services of a reliable Agent at a moderate commission to attend to all their business in the United States, are invited to correspond (in English) with the undersigned.

Has had three years' experience as purchasing agent for Messrs. Wm. Marples & Sons, Sheffield and London, England.

S. H. JENNINGS, Address Deep River. Conn., U. S. A.

#### Bissell & Welles. Wholesale Hardware Auctioneers.

83 Chambers and 65 Reade Sts., N. Y. Sales held weekly for the trade. Consignments

solicited. We refer to the leading Manufacturers

#### NOTICE.

Manufacturers of hardware who are not represented in New England, and who are disposed to consign their leading goods, can make satisfactory arrangements with the undersigned, who have facilities for introducing their goods to the whole-sale and retail trade of New England. CLAPP & WILKINS,

224 Franklin Street, Boston

#### Tin-Plate Salesman Wanted.

A first class man thoroughly familiar with the consumers in New York City and State can secure a permanert engagement by addressing with references and stating terms.

Office of The Iron Age, 83 Reade St., N. Y.

#### Wanted,

Position as Superintendent of Rolling Mill, by party educated as an engineer, but engaged for past nine years in practical rolling-mill work. Possesses knowledge of chemical analysis necessary for the economical admixture of stock. Refers by permission to former employers.

A. J. MOXHAM, Address Louisville Rolling Mill Co., Louisville, Ky.

#### To Capitalists and Manufacturers. FOR SALE IN CANADA,

Complete manufacturing establishment for making Bolts, Nuts and Spikes. Extensive premises, conveniently situated, containing all requisite tools, plant, machinery, furnaces, shafting, belting, pulleys, taps, dies, &c., all complete, in working order. Good and increasing market. No manufactory at present in Canada. Protective tariff of 17½ per cent. ad valorem, and every pros-pect of its being largely increased Will be sold at a bargain. Terms liberal. For particulars apply

#### Special Notices.

#### The Sherman Process Co.

9 Pemberton Square, Boston, Mass., Issue Licenses to use the Process for the Manufacture of Iron and Steel

In the Bessemer Converter, Crucible, Siemens-Martin, Puddling, Blast and Cupola Furnaces.

The use of this Process improves the quality of the product, saves fuel and labor, and does not require any change in furnace or manner of working.

See page 17 of The Iron Age of Oct. 25th, 1377.

#### To Manufacturers and Jobbers of Hardware, Cutlery, &c.

Manufacturers and Jobbers, having surplus stocks or goods that from any cause are unsaleable upon which they wish to re dze, or assignees who have stocks to dispose or, will find a cash purchaser by communicating with.

Dealer in Job and Auction Lots of Hardware, Cutlery, &c., 103 Chambers St., New York.

W. M. CALDWELL,

#### Books Price

BUELL LAMBERSON. No. 97 Chambers Street,

These books may also be had at publishers' prices of
WM. BLAIR & CO., Chicago,
A. F. SHAPLEIGH & CO., St. Louis, and
R. W. BOOTH & CO., Cincinnati, O.

#### CALIFORNIAN AGENCY.

A San Francisco firm of File and Tool makers having an agent constantly traveling among the mers in the State and West Coast, is desirous of representing some first-class Eastern Houses in anufacturing hardware trade.

Address AGENCY, 248 Beale St., San Francisco, Cal.

#### FOR SALE

Whole or part interest in largest Machine Shops and Foundry in Omaha, Neb. Employ 30 men. Business profitable. Reason for selling, owner is an attorney and cannot give the business attention

Address T. W. T. RICHARDS, • Omaha, Neb.

#### FLOWER PINS. I new article of light wire, recently patented THE ENTIRE PATENT

OFFERED FOR SALE. For further information address the inventor J. H. PLUMMER, 1276 Pacific St., Brooklyn, N. Y.

FOR SALE,

Job Lots and Bankrupt Stocks Hardware.

Great bargains offered to the trade. A. W. WHEELER,

141 Lake St., Chicago, Ill. To Steel Manufacturers.

An energetic young man with scientific training, who has had experience in the manufacture of Bessemer and Crucible Steel, in preference to remaining unemployed would be willing to take a subordinate position with the prospect of being employed as blower in Bessemer or as melter in Siemens-Martin steel works. Highest recommendation as to integrity, character and shilty furnished. A correspondence, which shall be strictly confidential, respectfully solicited.

Address

A. I. F.,

33 West 35th St., New York.

SECOND-HAND MACHINIST TOOLS. SECOND-HAND MACHINIST TOOLS,

30 in.x12 ft. Engine Lathe; do. 24 in.x24 ft., Pond,
nearly new; 22 in.x10 ft., good order; 18 in.x8 ft., Star
Tool Co., new; 16 in.x6 ft., Ames Mig. Co., nearly
new; 16 in.x5 ft., Stroud, fair order; 15 in.x4 ft., Fitchburg Mch. Co.; 14 in.x5 ft., Klathers; 13 in.x4 ft., Fratt.
& Whitney, with taper attachment; 3 Spencer Hand
Lathes; one 12 in.x4 it. Hand Lathe; 1 square arbor
Fox Lathe; one 32 in.x7 ft. Planer; 1 do. 30 in.x7 ft.;
1 do. 27 in.x7 ft.; 1 do. 24 in.x5 ft.; 1 Crank Planer, 12
in. stroke; 1 do., 24 in.x5 ft.; 1 Crank Planer; one
io in. Fitchburg Shaper; 1 N. Y. S. E. Co., 9 in., new;
two 24 in. Hendy, new; one is in. Hendy, new; 1 Mason Milling Machine, heavy; 2 No. 8 Brainard; 7 Lincoin Pattern Milling Machines; 2, 3 and 4 splindle P.
& W. Drille; No. 2 and 6 Wilder Funch Press; one
Schlenker No. 2 Bolt Cutter, new; 1 selfors Bolt Cutter; 1 No. 3 Smith & Garvin Millers, new; 3 Hand
Millers, new; 1 Serew Machine; 28x50 in. Co.; 41
42 in. Greene; 14x30 in. Whitehil; 1xxx21 in. new
Haxris Corliss; 10x24 in. Flabkill in 1xxx21 in. new
Hay
Hor. Tub. Boller; one 25 h. p. Vent. Tub. Boller, wh
Pump and Heater, new; 1 six "Sensitive" Drills for
fine drilling.

E. P. BULLARD. 14 Dey St., New York,

E. P. BULLARD, 14 Dey St., New York.

SPECIALTIES.

#### STEAM PUMPS and STEAM MACHINERY.

Steam Pumps for every possible duty. Estimates given for and Pumps erected in artesian and other wells any depth or capacity. Special Pump to work with exhaust steam, guaranteed to put no back pressure on the engine. All machines fully guaranteed.

GEO. W. STORER,

#### 132 North 3d St., Philadelphia, Pa. SPECIAL NOTICE. CHEAP HARDWARE.

Having determined to close out our entire stock of Hardware, as we intend quitting business, we are offering especial inducements regardless of cost, Call and see LANE & BOONE, Importers and Jobbers of Hardware, 1237 Market St., Philadelphia.

#### INTERNATIONAL EXHIBITION, MELBOURNE, AUSTRALIA.

American manufacturers and others who wish to be represented at the international Exhibition, to be held in Melbourne in 1882, are respectfully requested to communicate with the undersigned, who is now making arrangements for personally attending to a limited number of exhibits. Terms, references and full particulars can be obtained on application to JAMES E. DENISON,

J. H. BARTLETT,
64 King St., E., Toronto, Canada.
193 & 295 Collins St., West Melbourne, Australia.

# Trade Report.

Office of The Iron Age, Wednesday Evening, Jan. 8, 1879.

The resumption of Specie Payments by the Treasury during the past week has not been attended by any disturbance in the financia markets, nor any change of values. The history of the Gold market since 1861 is interesting. On the 30th of December, 1861, the banks pretty much all over the country suspended specie payments. On Monday, the 13th day of the next succeeding January, "premium on gold" was ushered into a recognized existence by sales at the New York Exchange at 103. On the 13th of March, the same year, it declined to 1011/8, but on the 22d of October it had reached 13734. Since that time the fluctuations have been as follows: In 1863, highest 172½, lowest 122⅓; 1864, highest 285, lowest 151⅓; 1865, highest 234½, lowest 128⅓; 1866, highest 16756, lowest 12478; 1867, highest 146 %, lowest 132; 1868, highest 150, lowest 132; 1869, highest 162½, lowest 119½; 1870, highest 123¼, lowest 110; 1871, highest 115¾, lowest 108¾; 1872, highest 115%, lowest 1081/2; 1873, highest 1191/8, lowest 1061/8; 1874, highest 1143/8; lowest 109; 1875, highest 11756, lowest 11134; 1876, highest 115, lowest 107; 1877, highest 1077/8, lowest 1021/2; 1878, highest 1027/8, lowest o.

These figures will be valuable for future reference. Up to the beginning of business today the account at the New York Sub-Treasury stood as follows:

Gold received in exchange for legal ten-der notes since beginning of species Gold gained by Treasury ......\$1,598.520

After resumption, the event of principal interest during the week has been the extraordinary demand for 4 per cent. bonds, the sales reported up to noon to-day being \$6,250,000. It is expected that the Treasury will to-day issue another call for the redemption of \$10,000,000 of 5-20s of 1867. This will make \$40,000,000 of 5-20s of 1867 (6 per cents) notified for redemption since Dec. 31 last. Refunding of the 6 per cents into the 4 per cents may, therefore, be said to be going on at the rate of nearly \$6,000,ooo per day. This rate, of course, cannot be kept up. If it could the entire issue of 67s would be refunded into 4 per cents, or notified for that purpose before the 1st day of March. It does not now appear at all unreasonable, however, to expect that the entire amount of 1867s (originally about \$310,000,000), will be called in before July I next. Whatever may be the ultimate outcome, so far as the markets are concerned. of this rapid refunding, it is a satisfaction to know that the annual interest on so large a part of the public debt is being reduced one-third; and that the taxpayers will have the benefit of this reduction until the principal of the debt is finally extinguished.

The local money market has been easy at 2 @ 3 % on call, and 4 @ 5 % on prime business paper

The bond market is strong but unchanged, except that 5s and 6s of 1881 have advanced 1/8 and '67s have declined. The demand is chiefly for 4s, 41/2s and 5s, and the offerings chiefly '67s.

The stock market desirable investment shares are strong, and speculative shares buoyant. The principal dealings have been in Lake Shore, St. Paul, Northwest, D., L. & W. and Erie.

\$796,775 in surplus reserve, which now \$11,275,550, against \$9,324,125 at this time last year, and \$18,458,100 at the corresponding period in 1877. The loans show a decrease this week of \$1,574,400; the specie is increased \$472,100; the legal tenders are increased \$1,065,500; the deposits are up \$2,963,300, and the circulation is increased \$272,100.

The following is an analysis of the bank totals of this week compared with last

	Dec. 28.	Jan. 4.	Com	parisons
Loans	\$235,824,400	\$234,250,000	Dec.	1,574,400
Specie	20,514,100	20,986,200		478,100
Legal t'nd'rs	40,767,100	41,832,600		1,065,500
Tot. reserve.	61,281,200	62,818,800	Inc.	1,587,600
Deposits	203,805,700	206,173,000	Inc.	2,963,300
Reserve re-	50,802,425	51,543,250	Inc.	740,825
Surplus	10,478,775	11,275,550		786,775
Circulation.	19,576,700	19,848,800	Inc.	272,100

The foreign trade mo in the following tables

For week ended January 4:

1877. 1878. 1879. Total for week. \$5,259,709 \$4,977,793 \$4,267,838 Included in the imports of general merchandise were articles valued as follows:

Quantity.	
Anvils70	\$710
Brass goods9	X,375
Bismuth4	1,857
Bronzes2	289
Chains and anchors3	107
Copper	373
Cutlery59	16,510
Guns24	7,004
Hardware13	1,139
Iron, pig, tons	1,272
Iron, sheet, tons43	6,633
Iron, ore, tons440	789
Iron, other, tons	17,400
Metal goods85	10,959
Nails9	1,918
Needles7	2,088
Old metal	875
Platina	620
Percussion caps	3,047
Saddlery I	172
Steel	9,626
Silverware5	50
Tin, bxs	74,78
Tin glaha 602	0. 725

	For week en			
	For the week		1877.	
-		EXPORTS OF 8	\$6,477,544	¥414=913/3
	For week en			
	Fotal for the week Same time in 187 Same time in 187	K	**** ******	\$143,742
	Same time in 187	7		457,620 268,634
0	Same time in 187	6		678,043
n	Same time in 187	5		1,616,121
ıl	Same time in 187	4	**********	540,478
e	Same time in 187	2		2,695,233
_	Same time in 187 Same time in 187 Same time in 187 Same time in 187: Same time in 187: Government	bonds a	t the ele	se were
-	anatad as fells	bonus a	o the cro	BO WOLU
2	quoted as follo			
y	IT & Chimmonon 61a		Bid.	Asked.
,	U. S. 6's 1881 regis	tered	10636	106%
	U. S. 6's 1881 coup	on	1063/8	1061/2
2	U. S. 6's 1867 reg.		101%	1021/8
- 1	U. S. 6'S 1867 COU.	**********	101/8	TO2 1/8
	U. S. 6's 1868 con.			10472
E	U. S. Currency 6's U. S. 6's 1881 regis U. S. 6's 1881 coup U. S. 6's 1867 reg. U. S. 6's 1867 reg. U. S. 6's 1867 reg. U. S. 6's 1868 reg. U. S. 6's 1868 cou. U. S. 10-40 coupon U. S. 10-40 coupon U. S. 1881 coup U. S. 4½'s 1881 regis U. S. 4½'s 1891 reg U. S. 4½'s 1891 reg U. S. 4½'s 1892 reg	****** ****	1081/4	10838
,	U. S. 10-40 coupon		108%	10838
u	U. S. 5'8 1881 regis	terea	105/8	100
	U. S. 416'S 1801 reg	ristered	1051/	10536
1	U. S. 41/2's 1891 col	ipon	10514	10538
	U. S. 4's 1907 regis	tered	991/2	9958
	U. S. 4'S 1907 coup	on	9998	99%
Н	The following	were the	cloting qu	otations
	of active shares			of the
	Atlantic and Pacif Canada Southern. Chicago and North Chicago, Rock Isle Chicago, Bur. and Col., Chicago and Clev Col., Cin. ar Cleveland and Pitt Chicago and Altor	- m-1	Bid.	Asked.
	Canada Southern	ic Telegrap	n 31	3134
1	Chicago and North	west	5136	5116
1	46 46	Pref	78	781/8
	Chicago, Rock Isla	and and Pac	ificr1938	11914
1	Col Chicago and	Ind Contro	11121/8	112%
1	Clev., Col., Cin. an	d Ind	3534	36
1	Cleveland and Pitt	sburgh	853/4	86
1	Chicago and Altor	D-6	79%	8e
1	Canton	rrer	2414	25
1	Delaware, Lack, a	nd Western	44	443/8
ı	Delaware and Hu	dson Canal.	3834	391/4
ı	Express—Adams.			106
1	" United S	tates	40.54	4774
1	Canton  Canton  Delaware, Lack, a  Delaware and Hu  Express—Adams.  America  Wells, F  Erie  Harlem  Hannibal and St. J  Illinois Central  Kansas and Texas  Lake Shore.	argo & Co.	94	95
1	Erie	**********	225/8	223/4
1	Hannibal and St. 1	Togonh	************	141
1	44	Pref.	34	34%
L	Illinois Central		8x1/2	8134
ı	Kansas and Toxas		634	638
1	Michigan Control		7676	6758
1	Morris and Essex.		7534	77 <sup>1</sup> /8
1	Milwaukee and St.	Paul	351/2	35% 76%
Į.	Now Youls Control	Pref	76%	7638
1	New Jersey Central	1	241/2	34%
1	Ohio and Mississip	pi	7%	8
1	Illinois Central. Kansas and Tsyas Lake Shore. Michigan Central. Morris and Essex. Milwaukee and St. New York Central New Jersey Centra Dhio and Mississip Pacific Mail. Panama.	Pref	19	191/4
	Panama		1398	131/2
1	Pittsburgh and Fo	rt Wayne	103	103
1	PanamaPittsburgh and Fo		IX	12
1	St. Louis and Iron St. Louis Kansas C	Pref	32	34
1	St. Louis Kansas C	ity Norther	n 7½	73/8
1	44 44		Pref. 27	73/8 271/8
11	St. Louis and San l	Francisco	3	338

EXPORTS, EXCLUSIVE OF SPECIE.

#### GENERAL HARDWARE.

Pref....

We note a generally hopeful feeling in mercantile circles, but it is of course too soon to look for much business.

The Table Cutlery Manufacturers' Association, composed of the John Russell Cutlery Co., Lamson & Goodnow Mfg. Co., Landers, Frany & Clark; Meriden Cutlery Co., Beaver Falls Cutlery Co., and the American Cutlery Co. have adopted the following terms of sale: "Limit of credit, 60 days. Cash within 10 days from date of invoice, 4 per cent. discount; 30 days, 2 per cent. discount. No discount allowed after 30 days." They have adopted a revised net list of prices, to take effect Jan. 1. They will issue no printed list; but the prices can be had on application to the respective companies. No new patterns will be introduced during the coming season. All "Seconds" will be sold monthly at auction, but there will be no trade sale this season

Our readers will be glad to know that a successful termination of the financial complications of the Providence Tool Company has been reached, and the cash payment of the last of its indebtedness has been made. The bank return shows an increase of Three years ago the company issued extension notes amounting, with interest added for the full term, to \$3,200,000. These were made payable in six installments, six months apart. They have now all matured and been paid, without renewal or extension, and this with no part of the property of the company mortgaged or hypothecated. All the indorsers are also now entirely relieved, and every creditor has had seven per cent, inter-The company are now engaged in finishing the Turkish contract for Arms, and are also at work on a Sewing Machine for general household use, and are manufacturing the Keats Lock Stitch Machine for sewing leather. Their general Hardware business is continued as usual, and they are full of orders.

The Henry Seymour Cutlery Company, manufacturers of Shears and Scissors, have issued a price list, which is without important change from that previously in force. Straight Trimmers are unchanged.

Parmenter & Walker and the Western School Supply Company have jointly issued a circular, in which they announce the continuance of the agreement that has existed between them for the past two years, and that prices and terms will remain strictly uniform. The price of White Crayon has been advanced one cent per gross. Colored Crayons and Carpenters' Chalk remain at

same prices as last year. The following announcement has been published:

At a meeting of Hinge Manufacturers, held on the 20th of November, 1878, the following was adopted as the price of Strap and T Hinges, for the season commencing January 1st, and ending June 30th, 1879: 60 and 10 per cent. discount from list;

60 and 10 per cent. discount from list; cash 30 days.
Roy & Co., Stanley Works, E. W. Gilmore & Co., Sargent & Co., Lewis, Oliver & Phillips, Wheeling Hinge Co., Perin & Gaff Manufacturing Co., C. Hagar & Bro., Pittsburgh Hinge Co.

The price of Copper I was reduced, on the 1st cent. discount from the fo	instan	t, to	50	
Nos 7	8	9	IO	II
Price per lb\$0.49	.50	.52	-34	.56

Price per lb.....\$0..58 .60 .65 Referring to quotation on Russell Jennings' Augers and Bits, in last week's issue. we should have said that the discount on all his goods was 10 & 10 per cent.

A. Alford, under date of January 1st, issues a circular announcing that he has succeeded to the business of the sporting department of E. Remington & Sons, and will continue the same at the old stand, No. 283 Broadway, New York.

Mallory, Wheeler & Co. have issued a circular, announcing the death of Burton Mallory, their senior partner, in which they say: "The partnership agreements between members of the firm, and the testamentary provisions made by the deceased, authorize and require the continuance of the business without interruption, on the same general policy established by its former head."

We invite the attention of our readers to the advertisement of S. H. & E. Y. Moore. Chicago, in which will be found their revised discounts, showing an important reduction in prices.

Judge Nixon, of the United States Court in New Jersey, on the 2d inst., granted an injunction against Horace S. Bedell, of Newark, for infringement of the Knox and Cabell patents, now owned by L. Abbett and D. Jackson, for selling the Fluting Machine known as the "Champion."

The following circulars will explain them-

PHILADELPHIA, January 1, 1879.

To the Hardware Trade.—In order to facilitate our business intercourse with the New York and the Eastern Trade, we have this day opened a branch house at No. 128 Chambers street, New York, where we shall carry a full line of our goods, and have appointed Mr Wm. H. Bramhall as our man-

pointed Mr Wm. H. Bramhall as our manager at that place.
In taking this opportunity of returning our thanks to the trade for their liberal patronage in the past, we trust to retain and increase the same by offering these additional facilities, and by continuing to maintain the acknowledge! high standard of our goods and a liberal policy toward the jobbing trade.

Very respectfully.

Very respectfully, AMERICAN MACHINE Co. H. Albrecht, General Agent.

NEW YORK, Dec. 31, 1878. Mr. Wm. H. Goldey is admitted a partner in my firm, to take effect Jan. 2, 1879, for the continuation of the commission hardware business. Respectfully yours, HENRY L. BUTLER, Jr.

Referring to the above notice, we take Referring to the above notice, we take this opportunity to thank our friends for past favors, and to solicit a continuation of them in the future, promising to merit (by prompt attention to their wants, lowest prices always, and goods of the best quality) your kind consideration. We will send you our catalogue, which is now in the printers' hands, as soon as ready. We shall remove on the 2d of January to No. 95 Chambers street. Respectfully yours. street. Respectfully yours, BUTLER & GOLDEY.

Oliver Ames & Sons Corporation have issued, under date of the 1st inst., a new price list of their goods, from which they will take a uniform discount of 20 per cent. Quantity discounts are payable only to purchasers who have sustained the established prices, viz. : Parties east of the line of Pittsburgh and Buffalo will be required to sell goods at a discount not greater than 20 per cent.; parties in Pittsburgh and Buffalo, and west of the line, will be required to sell goods at a discount not greater than 171/2 per cent. Terms are net cash, payable in Boston or New York funds. Freight is prepaid to Boston or New York. All orders will be filled at prices ruling at date of shipment. They call particular attention to their Patent Welded Cast-steel Smooth-back Shovels and Spades, as being the cheapest and best cast-steel goods of the kind in the market. They state that they are particularly adapted to railroad work, being very stiff and strong, and at the same time much lighter than the old steel-edged goods. They can furnish an unpolished Shovel of this style at \$12.75 per dozen, list. In the back of the price list is a collection of over 50 cuts, showing various forms of Spades, Shovels, Scoops and Drainage Tools.

PRICE LIST OF SPADES, SHOVELS, ET O. Ames. - Ch-ol Wiles Che

NT.		Cast		l Edge Sh Black.	ovels.	7	To.	Pı
No.	D H'dle	Plain	Back	Sq. pt. Sl	hovels		0	S
21,	11	-	66	4.6	66		X	*
	6.6		66	6.6	64		2	
22,	8.6		6.4	64	44		- 3	
23,	4.6		4.6	64	6.6		4	
24,	6.		6.6.	44	6.6			
25,	6.6		44	1 44	.66		5	
	61		6.6	6.6	66			
27,	44		66	64	64		7 8	
	4.4		6.4	6.6	66		9	
29,	64		*5	6.6	6.6		IO	
30,	6.6		*4	66	4.6		II	
31,	64		44	66	64		12	
32,	66			4.6	44		13	
331	4.4		64	44	64		14	
34,	6.		64	"Cha	pa 66		-4	
351	46		66	"Boy	g1 44			
36,	44		44	" Bric	le 66		**	
37, 38,	44		64	Rd. pt.	44		E	
30,	46		6.6	44	44		2	
39,			64	4.6	6.6		3	
40,	6.		66	44	66		4	
4I,	64		6.6	16	64	***		
42,	-66-		66	44	6.6		5	
431	64-		44	6.6	6.6		7	
441	L'g H'dl	0	44 .	Sa nt	6.6	***	0	
451	rg'u a	10	44	Sq. pt.	66		I	
46,	6.6		44	64	64	***	2	
471	64		44	66	44		3	
48,	44		64	44	44	***	4	
49,	44		66	**	44		5	
50,	6.6		66	Rd. pt.	66	**:	0	
51,	64		44	Ru. pt.	.66	***	I	
52,	66		44	. 66	44		2	
531	6.6		44	44	66			
54,	44		44	64	66		3	
551		Doole		n Sa mt	64		4	

15								
6x.	D H'dle Ba	ek St	rap. Squa	re p't	1		12.50	
ба, 63,	D H'dle Ba	46	"	46		6	14.50	Patent Plai
	without I	hand	Polished.			**	9-75	No. 228, D H'dle S 220, " 230, " 231, 234, " 233, 234, " 235, " 235, " 236, D H'dle S 237, " 238, " 238, " 238, " 238, " 240, L'g H'dle 241, " 242, "
54,	D H'dle Pla	in Be	ick Sq. pt.	Show	els	3	\$12.00	228, D H die 8
56,	66	- 66	Rd. pt.	66	****	3	12.75	231, "
58,	46	64	46	66	****	3	12.50	233, 12 8 11 016
10,	L'g H'dle	66	Sq. pt.	66		I	12.25	234,
2,	44	66	Pd nt	66		3	12.75	· DWW- C
41	66	66	nu. pr.	66		2	12.25	237, "H'dle S
51			O. Ames.			3	12.75	238,
	Cast-	Steel	Edge Plat	ted Sp	ades.			338,
76,	D H'dle, Pl	ain I	Back Spad	08		IO.	\$12.00	242, " 1
771		4.6	66			3	12.25	244, D H'dle S
79,	L'g H'dle,	66	66	****		4	13.50	246, 1.'e H'dle
81,	66	66	66	****		2	12.25	248,
83,	D H'dle,	66	Grafting	Tap	ered	3	12.75	250, D H'dle M
85,	66	64	Granting.	pade	***	3	12.50	251, 66
87,	66	66	Nursery	Spade	98	2	14.50	253,
88, 89,	44	66		Tap	ered	3	15.00	255, L'g H'dle
90,	66	66	Drain Sp	ades,		3	13.25	257, 44
92,	. 66	44			*	3	13.25	259, D H'dle M
94,	T H'dle,	66	Ditching	Spade	38		13.00	Patent Plain
96,	D H'dle,	66	Brick Sp.	ades.			12.00	No. 260, D H'dle Se
28,	66	66	Mining	64			11.00	261, " R
20,	64	66	C'cave or	Post !	S'pd	*	12.00	263, "
22,	66 Clashat	64	Rd. pt. Sr	ades.	100		12.50	265, "
N.	ote.—Polish	ed Sp	pades, \$1 1	nore i	per de	oz.	10.50	267, "
0	Drain Spade	s wit	h Foot Cla Polished.	sps, \$	1.50 E	o. I	a. Pr. dz.	269, " " 269,
24,	D H'dle, Pla	ain B	ack Spade			1 3	\$13.00	271, "
56,	44	66	Hodge St	arlos		3	13.50	272, L'g H'dle
8,	T'm III dla	66	Rd. pt.	16		2	13.50	274, " 1
10,	Lg Hale,	66	Spaces			3	13.00	276, D H'dle SI
ı,		7	M. Porte	r		3	13.50	278, "
	Stee	l-Ed	ge Plated	Shove	ls.			280,
0.	D H'dle Pla	in Be	Black, ek Sq. pt.	Show	ols	o. I	\$8.50	282, D H'dle M
3.	66	64	46	44	***	2	8.50	284,
5,	44	46	66	- 66		4	9.75	286, L'g H'dle
7.	66	66	44	44		6	11.50	288, 44
9,	64	64	66	44		8	13.50	289, D H'dle Fe
ic,	66	46	66	44		10	15.50	Patent Plain
3,	**	66	. 44	66	***	13	18.50	Patent Plain
4.	4+	66	8.6	6.6		13	20.50	201, D H'dle Sq
6,	44	64	Rd. pt.	Nhos	pla		8 80	292,
7.	44	44	. 66	66	***	3	9.00	204, L'g H'dle
0,	66	44	64	66		4	10.25	293, "Ha 294, 1295, L'g H'dle 1295, L'g H'dle 1297, "I 298, D H'dle Sq 300, "R 303, L'g H'dle 304, "He Bo
1,	44	44	44	44		6	12.00	298, "
3,	L'g H'dle	66	Sq. pt.	. A4		I	8.50	300, D H die Sq
5,	**	44	66	66		3	9.00	302, "
7.		66	6.6	6.6		5	10.50	303, L'g H'die
20	0.0	64	Rd. pt.	44		2	8.25	305, "Re 306, 307, D H'dle Sp
1,	D H'dle Bac	k Str	ap Sq. pt.	Sheve	als	3		
31	66	44		45	** .	3	9.00	310, L'g H'dle
5,	66	65	-		9.0	5	10.75	311, 44
7, 8,	66	46	66	41	**	0	11.50	313, D H'dle M
		- n	Polished.	C'h one				Patent Plain
9,	D H'dle Pla	in Ba	ck sq. pt.	SHOVE		2	9.25	No. 314. D H'dle So
1,	66	64					0.75	315, " R
3.	46	66	44	44	***	3	9-75	317, T'm H'dle
5,	L'g H'dle	66	Sq. pt.	64	***	2	9.25	319,
7,	66	44	Rd. pt.	66		3	9-75	321, 14
9,	66	64	Rd. pt. Sq. pt. Rd. pt.	64		2	9.00	No. 314, D H'dle Se 315, 44 Re 317, 316, 45 Re 317, 318, L'g H'dle 319, 44 Re 322, 44 Re 323, 44 Re
ω,		T	M. Porter					325, L g H die
	Stee	l Ed	ge Plated ? Black.	Spade	S. N.	o F		326, " 327, D H'dle M
0.	D H'dle Plai	n Ba	ck Spades			1		328, D H'dle M
3,	44	66	**			3	8.75 9.25	Patent Plain
5,	L'g H'dle	66	44			i	8.75	No. 329, D H'dle Sq
6,		66	6.6				9.25	330, " Re
8,	D H'dle						8.75	332, 333, L'g H'dle
O,	44	66		44	***	3	9.25	334, " Re
2,	44	44	Concave or	Post	Spade	4	9.25	336, " 337, D H'dle St
3,	66	6.6	Diamond-I	pointe	d "	2	9.25	338, "
6,	66	44	Drain Sac	dea		3	11.75	333, L'g H'dle 3334, " Re 335, " Re 335, " Re 336, " Re 345, " Re
8,	66	64	ram spa	***		3	10.75	342, 4
91	- 66	6.6	8.6			A	10.75	Patent Plain
31,	T H'dle D H'dle	66	Ditching S	pades			11.25	No.
3,	D H'dle	44	Ditching S Hedge Spa Boys' Spa	des			7.50	343, O. Ames'
Po	olished Spad	les, \$	i more pe	r doze	n.			345, A. C. Ray 346, R. C. Blair 347, Carter's 348, Jas. Adam
	D HIAL DI-	in D	Polished.			7	0.50	347, Carter's 348, Jas. Adam
36,	D H'dle Pla	154	on opene	*****		2	9.50	Back Str
37,	44	44	66			4	11.00	349, U. Ames' 1 350, J. Bisbee's
19,	L'g H'dle;	64	46	*****	*****	2	9.50	351, A. Stone's 352, O. A. Day
11,	D H'dle	6.6	Hedge Sp	des.	*****	3	10.00	353, Sanderson 354, J. Carr's
3.	44	44	Nursery S Diamond-	pades	d Spa	des	12.25	Back Str. 249, O. Ames 1 350, J. Bisbee's 351, A. Stone's 352, O. A. Day 353, Sanderson 354, J. Carr's 355, Jas. Adam
- 15		Jo	mes Adam	1.8.				The Asset Pileder Ti

Steel Edge Plated Shovels

Adam's Goods are Imperfect.

Polished

Rd. pt.

Polished.

213, D H'dle Plain Back Sq. pt. Shovels.

219, D H'dle Plain Back Spades.

215, 216, L'g H'dle

221, L'g H'dle

223, D H'dle

225, L'g H'dle

9.5 10.0 10.5 11.0 12.5 13.0 13.5 14.0 7.5 7.7 8.7

Pol'd Cast-Steel Back-Strap Shovels and Sp

D H'dle Plain Back Sq. pt. Shovels.

50		-	la and
75	Spades.		
	No. Polished.	No.	Pr. dz.
00	No. Polished. 228, D H'dle Sq. pt. Shovels. 229, 230, Rd. pt. " 231, 232, L'g H'dle Sq. pt. " 233, Rd. pt. " 234, Rd. pt. "	. 2	\$13.90
25	230, " Rd. pt. "	. 2	14.25
25	231, L'g H'dle Sq. pt. "	3	15.00
50	233, " " " " " " " " " " " " " " " " " "	. 3	14.25
23	226. "	. 2	T.4 (9)
25 75	Black,		0
25	Black,  236, D H'dle Sq. pt. Shovels  237, Rd. pt  239, Rd. pt  240, L'g H'dle Sq. pt  241, Rd. pt  242, Rd. pt  243, D H'dle Spades, Polished.  245.	. 2	\$12.75
25 75	237, " Rd pt. "	. 3	13.50
	239, 41 44	3	14.25
	240, L'g H'dle Sq. pt.	2	12.75
E.	242, " Rd. pt. "	. 3	12.75
25	244. D H'dle Spades, Polished	3	X3.50
50	245, 44 44 44		13.50
50	247, L'g H'dle " "	3	14.25
25	239, Rd, pt. 239, 240, L'g H'dle Sq. pt. 441, 242, Rd, pt. 243, 244, D H'dle Spades, Poliahed. 245, 246, L'g H'dle 250, D H'dle Mining Spades, Polished. 251, Forking 252, 253, Black 253, L'g H'dle 253, 254, 255, L'g H'dle 257, 256, D H'dle Mining 250, D H'dle Mining	3	13.50
75	250 D H'dle Mining Spades, Polished	.3	84.25
15	251, " Forking "	. 2	12.50
50	252, " Black	3	13.00
0	254, "	. 2	12.75
00	255, L'g H'dle " "	3	13.50
5	257, 44	. 2	12.75
15	250, D B' die Mining " " " " " " " " " " " " " " " " " " "	3	11.75
15	Treadwell.		11
15	Patent Plain Back Solid Cast Steel Sh	ove	is and
0	260, D H'dle Sq. pt. Shovels, Polished	2	\$12.50
0	261, " Rd pt "	3	13.00
0	263, " " " " " " " " " " " " " " " " " " "	3	14.00
0	264, L'g H'dle Sq. pt. "	2	12.50
0	266, " Rd. pt ." "	2	12.50
	Treadwell.  Fatent Plain Back Solid Cast Steel Sh No. Spades. 26c, D H'dle Sq. pt. Shovels, Pollshed 26z, Rd. pt. " 26z, " Rd. pt. " 26z, " Rd. pt. " 26z, L'g H'dle Sq. pt. " 26z, " Rd. pt. " 27z, L'g H'dle Sq. pt. " 27z, L'g H'dle Sq. pt. " 27z, " Rd. pt. "	3	11.75
£.	209, " Rd nt " "	3	12.25
0	271, 41	3	13.25
0	272, L'g H'dle Sq. pt. " " "	3	11.75
0	273, L'g H'dle Sq. pt, """""""""""""""""""""""""""""""""""	3	11.75
0	275, D H'dle Spades, Polished	3	12.25
0	277, "	3	12.50
1	270, L'g H'dle Spades, Polished	3	13.00
1	280,	2	12.50
6.	282, D H'dle Mining Spades, Polished	3	13.00
0	283, " Black"	x	11.75
0	273, L'g H'dle Sq. pt. 273, 274, Rd, pt. 275, D H'dle Spades, Polished. 277, 278, L'g H'dle Spades, Polished. 280, 281, H'dle Mining Spades, Polished. 283, D H'dle Mining Spades, Polished. 283, H'dle Mining Spades, Polished. 284, 485, 486, 487, 488, 488, 488, 488, 488, 488, 488	2	11.76 12.25 11.75 11.75 12.25
	286, L'g H'dle " "	X	11.75
0	287, 14 44 44 44 44 44 44 44 44 44 44 44 44	3	12.25
0	289, D H die Forking Spades, Pousned	2	12.25 12.50 13.00
0	A. C. Ray.	3	13.00
0	Patent Plain Back Solid Cast-Steel Sh	ovel	s and
0 1	Snades		
0	No. 201, D H'dle Sq. pt. Shovels, Polished	10.	SIT. SO
0			
0	293, " Rd. pt. " "	3	12.50
5	294, 295, L'g H'dle Sq. pt. "	3	11.50
0	296, "Rd. pt. " " "	3	11.50
0	208, " " " " " " " " " " " " " " " " " " "	3	10.75
- 1		3	11.25
0	301, " Rd. pt. "	2	11.23
5	303, L'g H'dle Sq. pt. " . "	3	10.75
5	304, " Rd nt " "	3	44.44
5	305, " Rd. pt. " "	3	10.75
5	307, D H'dle Spades, Polished	3	11.50
0	308, 14 14 14 14 14 14 14 14	3	12,00
5	310, L'g H'dle "	1	11.50
5	319.	3	12.00
0	313, D H'dle Mining Spades, Polished R. C. Blair.		11.00
	Patent Plain Back Solid Cast-Steel Sh	ovel	s and
5	Patent Plain Back Solid Cast-Steel Sh No. Spades. 314, D H'dle Sq. pt. Shovels, Polished	No.	Pr. ds.
5	314, D Hale Sq. pt. Shovels, Polished	3	10.75
5	315, " Rd. pt. " " " "	2	10-75
5	317, L'g H'dle Sq. pt. " "	3	10.25
5	319, " Rd. pt. " "	3	10.25 10.75 20.25
5	321, 44 44 44 44	3	10.75
0	222 "	- 0	10.50
0	325, L'g H'dle " " " " " " " " " " " " " " " " " " "	3	11.00
1	324, 325, L'g H'dle " " "	12.	10.50
	327, D H'dle Mining Spades, Polished	3	11.00
5	Carter.	0.0.	10.00
5	Patent Plain Rack Solid Cast-Steel Sh	ave.	is and
5	No. Spades. 329, D H'dle Sq. pt. Shovels, Polished 330, 331. Rd. pt. "	NO.	Pr. dz. \$9.50
5	330, " 124 -4 "	3	10.00
5	331. " Rd. pt. "	3	70.00
5	333, L'g H'dle Sq. pt. " 334, 335, Rd. pt. " 336, Pt. No. 10 Pt.	3	9.50
5	335, " Rd. pt. " "	3	9.50
5			
5	330.	- 2	9.75
5	340. L'g H'dle " "	3	10,00
5	34.1 11 11	2	9.75 9.75
5	342,	3	10.00
5	Patent Plain Back Solid Cast-Steel	Mol	lers'
5	No. Shovels.	No.	Pr. dz.
5		2	\$13.50 12.50
	344, Treadwell's "	2	11.50
	345, A. C. Ray's " " " " " " " " " " " " " " " " " " "	3	10.35
0	Molders' Shovela. Patent Plain Back Solid Cast-Steel No. O. Ames' D H'dle Sq. pt. Shovels 344, Treadwell's " " " 345, A. C. Ray's " " " 346, R. C. Blair's " " " " 347, Carter's	3 3	9.50
0	348, Jas. Adams' " Imperfect	2	7-75
0	348, Jas. Adams' " Imperfect	2	7-75
0 0	348, Jas. Adams' " Imperfect	2	7-75
0000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Sho 349, O. Ames' Back Strap C. S. Shovels 350, J. Bisbee's """  351, A. Stone's """  444	2	7-75 12.50 11.00 10.00
0000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Sho 349, O. Ames' Back Strap C. S. Shovels 350, J. Bisbee's 351, A. Stone's """ 352, O. A. Day's """ 353, Sanderson's """	vela 2 2 2 3	7.75 12.50 11.00 10.00 9.00 8.25
00000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Sho 349, O. Ames' Back Strap C. S. Shovels 350, J. Bisbee's 351, A. Stone's """ 352, O. A. Day's """ 353, Sanderson's """	vela 2 2 2 3	7.75 12.50 11.00 10.00 9.00 8.25 7.75
00000	346, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' She 349, O. Ames' Back Strap C. S. Shovels 350, J. Bisbee's """ 351, A. Stone's """" 353, O. A. Day's """" 4"" 4"" 4"" 4"" 4"" 4"" 4"" 4"" 4"	vela 2 2 2 3	7.75 12.50 11.00 10.00 9.00 8.25
00000	348, Jas. Adams' "Imperfect  Back Strap Cast-Steek Molders' Sho 349, O. Ames' Back Strap C. S. Shovels 350, J. Bisbee's """ 351, A. Stone's """" 352, O. A. Day's """" 353, Sanderson's """" 354, J. Carr's """ 355, Jas. Adams' """  A. Lee.	2 2 2 2 3 3 3	7.75 12.50 11.00 10.00 0.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
000000000000000000000000000000000000000	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	a vela	7.75 12.59 11.00 10.00 9.00 8.25 7.75 6.50
2. 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	346, Jas. Adams' "Imperfect. Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S. Shovels. 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect. A. Lee. Patent Plain Back Solid Steel Shovels an No. 838, D H'dle Sq. pt. Shovels, Polished. 839, "Rd. pt. " 849, "Rd. pt. " 845, L'g H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 855, "Rd. pt. " 857, "Rd. pt. " 858, "Rd. pt. " 859, L'g H'dle Sq. pt. "	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7.75 11.00 10.00 9.00 8.25 7.75 6.50 9.00 9.50 10.25 9.00 9.50 10.25 8.75 8.75 8.75 8.75 8.75
2. 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	346, Jas. Adams' "Imperfect. Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S. Shovels. 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect. A. Lee. Patent Plain Back Solid Steel Shovels an No. 838, D H'dle Sq. pt. Shovels, Polished. 839, "Rd. pt. " 849, "Rd. pt. " 845, L'g H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 855, "Rd. pt. " 857, "Rd. pt. " 858, "Rd. pt. " 859, L'g H'dle Sq. pt. "	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7.75 11.00 10.00 9.00 8.25 7.75 6.50 9.00 9.50 10.25 9.00 9.50 10.25 8.75 8.75 8.75 8.75 8.75
2. 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	346, Jas. Adams' "Imperfect. Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S. Shovels. 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect. A. Lee. Patent Plain Back Solid Steel Shovels an No. 838, D H'dle Sq. pt. Shovels, Polished. 839, "Rd. pt. " 849, "Rd. pt. " 845, L'g H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 855, "Rd. pt. " 857, "Rd. pt. " 858, "Rd. pt. " 859, L'g H'dle Sq. pt. "	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7.75 11.00 10.00 9.00 8.25 7.75 6.50 9.00 9.50 10.25 9.00 9.50 10.25 8.75 8.75 8.75 8.75 8.75
2. 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	346, Jas. Adams' "Imperfect. Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S. Shovels. 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect. A. Lee. Patent Plain Back Solid Steel Shovels an No. 838, D H'dle Sq. pt. Shovels, Polished. 839, "Rd. pt. " 849, "Rd. pt. " 845, L'g H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 855, "Rd. pt. " 857, "Rd. pt. " 858, "Rd. pt. " 859, L'g H'dle Sq. pt. "	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7.75 11.00 10.00 9.00 8.25 7.75 6.50 9.00 9.50 10.25 9.00 9.50 10.25 8.75 8.75 8.75 8.75 8.75
2. 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	346, Jas. Adams' "Imperfect. Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S. Shovels. 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect. A. Lee. Patent Plain Back Solid Steel Shovels an No. 838, D H'dle Sq. pt. Shovels, Polished. 839, "Rd. pt. " 849, "Rd. pt. " 845, L'g H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 855, "Rd. pt. " 857, "Rd. pt. " 858, "Rd. pt. " 859, L'g H'dle Sq. pt. "	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7.75 11.00 10.00 9.00 8.25 7.75 6.50 9.00 9.50 10.25 9.00 9.50 10.25 8.75 8.75 8.75 8.75 8.75
2. 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	346, Jas. Adams' "Imperfect. Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S. Shovels. 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect. A. Lee. Patent Plain Back Solid Steel Shovels an No. 838, D H'dle Sq. pt. Shovels, Polished. 839, "Rd. pt. " 849, "Rd. pt. " 845, L'g H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 855, "Rd. pt. " 857, "Rd. pt. " 858, "Rd. pt. " 859, L'g H'dle Sq. pt. "	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7.75 11.00 10.00 9.00 8.25 7.75 6.50 9.00 9.50 10.25 9.00 9.50 10.25 8.75 8.75 8.75 8.75 8.75
2. 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	346, Jas. Adams' "Imperfect. Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S. Shovels. 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect. A. Lee. Patent Plain Back Solid Steel Shovels an No. 838, D H'dle Sq. pt. Shovels, Polished. 839, "Rd. pt. " 849, "Rd. pt. " 845, L'g H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 855, "Rd. pt. " 857, "Rd. pt. " 858, "Rd. pt. " 859, L'g H'dle Sq. pt. "	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7.75 11.00 10.00 9.00 8.25 7.75 6.50 9.00 9.50 10.25 9.00 9.50 10.25 8.75 8.75 8.75 8.75 8.75
2. 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	346, Jas. Adams' "Imperfect. Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S. Shovels. 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect. A. Lee. Patent Plain Back Solid Steel Shovels an No. 838, D H'dle Sq. pt. Shovels, Polished. 839, "Rd. pt. " 849, "Rd. pt. " 845, L'g H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 845, D H'dle Sq. pt. " 855, "Rd. pt. " 857, "Rd. pt. " 858, "Rd. pt. " 859, L'g H'dle Sq. pt. "	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7.75 11.00 10.00 9.00 8.25 7.75 6.50 9.00 9.50 10.25 9.00 9.50 10.25 8.75 8.75 8.75 8.75 8.75
2. 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	348, Jas. Adams' "Imperfect Back Strap Cast-Steek Molders' Shr 349, O. Ames' Back Strap C. S., Shovels 350, J. Bisbee's 351, A. Stone's 352, O. A. Day's 353, Sanderson's 354, J. Carr's 355, Jas. Adams' "Imperfect, A. Lee. Patent Plain Back Solid Steel Shovels an	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7.75 11.00 10.00 9.00 8.25 7.75 6.50 9.00 9.50 10.25 9.00 9.50 10.25 8.75 8.75 8.75 8.75 8.75

18			Т	HE	IRON	A	GE	1.
364, D H'dle Sq. pt. Shovels	9 19.00	826. 41 16		707, "	s's, Cast Steel, Polish	ed	g 16.00 6 16.50	11
266. 14 14 14		537, " " Tong-strap Spades	3 8.25	708, 44 709, 44	46 46 46 46 46		7 17.00 8 17.50 9 18.50	American Pig.—' Iron remains triffig
367, L'g H'dle Sq. pt. " 369, " 379, "	3 13.25	540, " Mining "	7.00	711,	66 66 68 65 66 66	1	1 20 00	quote : Foundry No.
371, " " " " " " " " " " " " " " " " " " "	5 15.00 1 12.50	543. 44 44	2 7.75 3 8.25	713, 714, 725,	14 14 14 14 14 14	X	3 22.00	dry No. 2, \$15.50 @ \$14.50 @ \$15.50.
374; " " " " "	2 12.50 3 13.25 vels. 2 12.00	5451	2 8.75	716, J. Bisber	66 66 66 66 66		2 12.75 3 13.25 4 13.75	Scotch Pig.—Ther Pig on the market.
377, Rd. Spring pt. 378, D H'die Spades	1 12.50	C. H. Reed.	and Smades	119, "	46 46 44 46 46 44		5 14.25 6 15.00 7 15.75	very slight—a fact ac measure, by the diffic
379, " 380, " 381, "	3 13.25	No. 548, Best Steel D H'dle Sq. pt. Shovels	No. Pr. dz.	723, O. A. De	ıy's " " "	****	8 16.50	the past week. The and no sales worth rec
382, " Long Strap Spades 383, " Mining "	2 13.50 3 14.25 11.00	550, 44 44 46	3 8.00 4 8.75 2 8.00	724, 725, 726,	66 66 66 66 6 66		3 11.00 4 11.50 5 12.00	during the week. 'Qu fore, viz.: Eglinton,
385, L'g H'dle	1 12.50 2 12.50 3 13.25	551, 552, "L'g H'dle Sq. pt. Show	els. 2 7.50 3 8,00	727. 728. 729.	44 44 46 44 46 46		5 12.75 7 13.25 8 14.00	Coltness, \$22.
387, "Long Strap "	2 13.50	554, " Rd. pt. " Rd. pt. "	4 8.75 2 7.50 3 8.00	730, Sanders	on's Best Steel "		2 10.00 3 10.25 4 10.75	Rails.—The demai more active than it
J. Bisbee.	s. ions per doz.	557. " D H'dle Spades 558, " L'g H'dle "		732, 733, 734,	46 46 46 46 46 46	:::: 8	11.25	time. Sales of 20,000 ported for the week
Polished Cast-Steel Back Strap & No. Spades.	No. Pr. dz.	560, " Lindsay.	3 8.00	735, 736, 737,	14 14 14	8		same quotations as at \$43 at tidewater. We
390, D H'dle Sq. pt. Shovels	3 11.50		3 7.25	738, " 739, "	16 16 14	11	14.75	mill, \$32 @ \$35, according terms, &c.
393,		564, " Rd. pt. "	7.75	741, Naylor's 742,	Steel, Half Polished	3	8.75 9.00 9.25	Old Rails.—We her
395, " Rd. pt. "	7 14.00 2 11.25	500,	4 7.75	743, 744, 745,	16 16	5	10.00	tons of Old Rails on quote the same, \$18@
399, 400, L'g H'dle Sq. pt.	4 '12.50	569, " D H'dle Spades	2 6.75	746, " 747, " 748, "	44 46	8	10.50	Scrap.—There is no no demand, for Scrap
401, 11 11 11 11 11 11 11 11 11 11 11 11 1		571, "L'g H'dle "	3 7.25	749, C. H. Ree	ed's Steel Pol'd Trimm	ers. 1		reported. We quote yard, \$21 @ \$22.
404, "Rd. pt. "	2 11.00	Imperfect Polished Cast Steel and S No. and Spades.	teel Shovels Per doz.	752, 753, J. Carr's	Extra Iron, Polished	3	8.50 7-75 8.00	-
407, " Rd. Sp'g pt. "	3 10.50	sas. L'g H'dle " " "	7.50	754, 755, 44	" " …	5	8.25	META
410, 44 44	2 11.00	576, D H'dle Spades, Patent	7.50	57,	41 11	7		Copper.—Sales have small lots Lake Super
412, 413, "Long Strap Spades	2 77.50	577, L'g H'dle " 578, D H'dle Sq. pt. Shovels, Cast Steel 579, "Rd. pt. 581, L'g H'dle " 581, D H'dle Spades, <i>Qa</i> st Steel	6.50 7	61, " 62, Sanderson	** **	9	10.50	up altogether some 200 also the closing figure
415, L'g H'dle "	I II.00	582, " Sq. pt. Shovels, Steel	6.00 7	63, "	44 44	3	7.75 8.00 8	nominally worth as magrams have been receive
418, 410, 44	4 12.00 5	585, D H'dle Spades, Steel	6.00	66, "	44 44	6	9.25	The following yearly prepared by Messrs. F. of this city: Stock bro
420, "Long Strap "	less per doz.	Toy Shovels. 86. O. Ames's Polished Cast Steel		69, "	** ** **	9	10.00 1	877, 7,500,000 lb. Properior Copper, 1878, 38,0
A. Stone. Polished Cast-Steel Back Strap Sl	2	88 A Stone's 14	6.50 7	72,	Black	3	7.25	ther mines, 8,500,000, luction for the past ye
No. Spades.  422, D H'dle Sq. pt. Shovels	1 \$10.00 5	go, C. H. Reed's "Steelgr, Naylor's "Iron	5.25 7: 4.75 7:	741 "	** ** *****	5	8.25 8 8.75 8	and a supply of 54,000,0 umption has been 34,0
423, 424, 4 4 4	3 10.50	Toy Spades.  92, O. Ames's Polished Cast Steel	7.00 77	77, 11 77, 11	** ** ******	8	9.25 4 9.75 t	,000,000 lb. for cartrid he export of Ingot Co
425, 44 44 44 47, 44 47, 44 44 44 44 44 44 44 44 44 44 44 44 44	5 11.50 5	94, A. Stone's " "	6.50 77 6.00 78	30, J. Dorr's I	ron, Black		6.75	eaving a stock on the r
429, 44 44 44 44 44 44 44 44 44 44 44 44 44	8 13.75 5	96, C. H. Reed's "Steel 97, Naylor's "Iron	5.25 78	3, 46 .6	** ************************************	5	7.25 3	1, 1877. The Lendon December 21 contains th
431, "R'nd point "	2 10.50 3 10-75	Esek Carr.  Iron Back Strap Shovels and Spa	ides. 78	5, 11 16 56, 14 16	14	8	8.25 h 8.50 O	ave been slight variati f Chili Bars, scarcely
434. L'g H'dle Sq. p't "	2 10.00 5	70. 98, D H'dle Sq. pt. Shovels, Pol'd	No. Pr. dz. 78	18,	's Iron, Black	3	7.00 n	han 5/ P ton at the may be described as alm
437, 438, 439, "Rou'd pol't "	5 11.50 6c	99, 14 14 14 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	4 7.25 79	01,	" "	6	7.75 S	tock on the 15th inst wansea, was 23,388 t
440, 44 44 44 44 44 44 44 44 44 44 44 44 44	3 10.00 60	og, " Rd. pt. " "		o. Sanderson,	Furnace Scoops. Polished Steel. D Handle		r doz. to	ons on November 29, or ons, and the charters
442, "Round Spring-point Shovels 443, D. H'dle Spades	00	oo, L'g H'dle Sq. pt. "	· 4 7.50 79	Naylor, Ha	L'g "  lf Polished Steel.  D Handle		9.00 a	is month were telegra the previous charte
445, " 446, " 447, "Long-strap Spades	4 11.00 60	o8, " Rd. pt. " "	4 7.25 79 2 6.25	5. 64	L'g " Extra Iron, Polished.		8.50 ai	ons, it is expected that by I will show a con
448, " Mining "	3 11.00 61	r, D H'dle Sq. pt. "Black	3 6.50 79 2 5.75 3 6.00	7. 44	D Handle L'g " Extra Iron.		7.50 th	pon the previous totals. here is an increase in the ith the two previous ye
450, Long Handle	2 10.00 61 3 10.50 61	41 11 11 11 11 11 11	5 7.50 79 6 8.25 80		D Handle, Half Pol'd		7.25 in	precipitates, there bear over that of 1877
453, 454, "Long St'p Spades	2 10.50 61		2 6.00 80 3 6.25	J. Dorr, Bla	L'g " "		7.00 ar	nd about 7000 tons me total exports are
Unpolished Shovels and Spades 500 dozen.	020	o. L'g H'dle Sq. pt.	3 5.75 80	Lockwood,	L'g "Black Iron.	******	6.75 ye	ear, but there is not a
O A Day.  Polished Cast-Steel Back Strep St. No. Spades.	ovels and No. Pr. dz.	2, " Rd. pt. " "	4 6.75 804 2 5.75 805 3 6.00		D Handle L'g "Boys' Scoops.		6.50 of	work, and there is taining an expedition
456, D. H'dle Sq. pt. Shovels	. I 9.00 625		2 6.25 3 6.50 806 4 7.25 807	S, O. A. Day, C, Sanderson,	Cast Steel, Polished		89.20	dia is not buying, o
458, 459, 44 44 44 44 44 44 44 44 44 44 44 44 44	9.50 627 628 5 11.00 629	,	3 6.50 800	3, Naylor, 5, John Car, E	Extra Iron, "		7.50 res	changes from the ached us, bearing dat
462, " " " " " " " " " " " " " " " " " " "	7 12.50 631	DH'dle Black	3 6.00 812	, J. Dorr,	Black		6.75 du	ite from Santiago (Ch
404, "R'd pt. "	9 14.00 633 2 9.50 634	L'g H'dle " "	4 6.75 2 5.75 3 6.00 No.		rn Pattern Coal Shove s B. S. Half Polished	No. Pr	dz. pri	ctured Copper is dull, a
468, L'g H'dle Sq. pt. "	4 10.75 0351 1 9.00	Naylor.	4 6.75 813. 814. 815.	**	" Black	3 1	o.oo zie	e quote new Sheathing rs', 22¢, and Bolts, 22¢
469, 44 44 44 470, 44 471, 44 471, 44 471, 44 471, 44 471, 44 471, 471,	3 9.50 No. 4 10.25 636,		es. o. Pr. dz. 2 \$6.00		O. Ames.		209	eathing Metal, 13½¢; ; e, and English Yellow &¢ @ 12¾¢ currency, i
472, "R'd pt. "	1 9.00 637, 0.00 638,	16 16 16 16 17 17 16 16 16 17 17 16 16 16 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	3 6.25 No.		ge and Ditching Tools, & ain Back Drain Spades	No. Pr.	dz. 7	inOur market cont
474. " R'd Spring-point Shovels.	3 9.50 640, a 9.00 641.	" Rd. pt. " " "	5 7.75 91, 6 8.50 92, 2 6.25 92,	44	46 46 46 46	2 I	3.25 quo	te Straits, 14¢ @ 14¼¢; Common, ditto, 13½;
478, 44 44 44 479, 479, 479, 479, 479, 479,	3 9.50 643	L'g H'dle Sq. pt	3 6.75 94· 4 7.50 94· 2 6.00 95·	T Handle,	" Ditching Spade	S I	3.00 line	es, on the spot. We oment of Straits Tin,
480, Long-strap Spades	4 10.25 645, 2 10.00 646, 3 10.50 647	" Rd. pt. "	3 6.25 818, 4 7.00 819, 2 6.00 819,	" Flat	e Drain Cleaners to pus Socket Cleaners "	. 1	1.25 arv	ditto, 13¢. Exports tinue to be liberal; thus
483, L'g H'dle Mining	8.00 648, 9.00 649, 9.00 650	46 46 46 44	3 6.25 820, 2 5.25 821, 822,	" Square	Socket "to pul	h . 1	3.00 of	December 570 tons we
486, 4 Tong strep Spedes	3 9.50 651,	11 11 11 11 11	3 5.50 100, 4 6.25 823, 5 7.00 8001	Steel Edge P C. S. Spoons	ost Hole Spades for digging post holes Layers	1	a.oo lane	
488, "Long-strap Spades	2 10 10	" Rd. pt. " "	6 7.75 2 5.10 3 6.00	21 27 411	O. Ames.		25,0	ooo slabs. The quiet, with a downwar
dozen.  Sanderson.  Pol'd Cast-Steel Back-Strap Shovels and	656, 657, 658.	L'g H'dle Sq. pt.	4 6.75 No. 824, 5.50	C. S. Back St	Lime Shevels. trap Long Handle, Dou Black	No. Pr.	£60	re cables \$18.25 pp. The following extra
	o. Pr. dz. 660.	Rd. pt. " " "	4 6.25 2 5.25 No.		O. Ames. Gas Shovels.	No. Pr.	rece	eived from parties in l, may prove instruct
492; 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2 8.25 662, 3 8.75 663,	D H'dle Spades, Polished	3 6.25	C. S. Back St Strap, Black	trap Long Handle, Lon k	. s \$15	5.00 Tin	forming an opinion : "Most of the Ti
493: 44 44 44 44 495: 44 44 44 44 44 44 44 44 44 44 44 44 44	5 10.00 665, 6 10.50 666,	L'g H'dle Spades "Rd. pt	4 7.00 2 6.25 No. 2 6.00 826	O. Ames' D H	st Steel Back Strap	No. Pr.	de lava	ss that is coming to har or or better prices for
406, "Rd. pt. "	3 9.25 668, 3 9.25 669.	D H'dle Spades, Black	4 7.00 828,	" TH	landle "	. 2 .	bef	ore the closed mines wo
500, L'g H'dle Sq. pt. "	8.25 671, 2 8.25 672	L'g H'dle Spades "	3 5.50 830,	O. A. Day's I	Handle "	. 2 .	repe	orts have been spread
502, " " "	3 8.75 673. 4 9.25 674.	D H'dle Grafting Spades, Black	5.50 833,	44			for	which there is no four when the effect of st
504, " Rd. pt. "	2 8.25	J. Dorr.	3 5.75 I NO.	O. Ames' Pa	or Hunter's Shovels. itent Picket or Hun	ter's	dz. we mar	may expect some recket." The following
508, n H'dle Spades	2 8.25 No	Iron Back-Strap Shovels.  D H'dle Sq. pt. Shovels, Polished	doze	ouble Strap en. Unpolish	Shovels or Scoops, \$1 ed Cast Steel, or Steel	more I	oer Sme	ter: "The Kangaroo a
510, 44 44	3 8.75 678,	46 45 46 44 ****	* *2./3   cent	a loss per dos	en than polished. Shovels, Spades or Se to order. Unpolished less per dozen than list		18 114	ot sufficient Ore to enter, out of 14 furnace
513, "Long-strap Spades	2 9.25 68z, 3 9.75 68z,	L'g H'dle Sq. pt. "	D Sh	lovel, Spade	or Scoop Handles, bent	and	at w	closed, or will be closed ork." Tin Plates have
516, L'g H'dle Spades	8.25 684, 1 2 8.25 685,	D H'dle Sq. pt. "Black	5.75 Lone	Shovel, Spa	de or Scoop Han- ndles, of extra length	UOE. \$2.	activ	at the following que
\$10, 519, 520, Long-strap Spades.	4 9.25 686, 9.25 687, 688,	" Rd. pt. " "	5.25 more	per dozen.	ndles, of extra length tra quality, 25 cents		\$5.20	recoal Bright, \$5.75 @ \$0 @ \$5.30; Coke Tin,
Unpolished Shovels and Spades 50 cents	less per 690,	L'g H'dle Sq. pt.	5.00 dozei	n.	an Ghamala an Garata	\$2.	large	ditto Ternes, \$4.75—all
John Carr.  Pol'd Cast-Steel Back-Strap Shovels and S	691, 698, 693,	" Rd. pt. " "			ECOOPS	3.		ead.—None but small joged hands since our la
No. 522, D H'dle Sq. pt. Shovels	\$7.75 695,	D H'dle Spades, Polished 2	5.75	y other sizes	made to order. Sisson's		fined	orice for Common Dor is worth 41/8 @ 4.1
523: " 14 " 1524: " Rd. pt. "	8.25 697, I	L'g H'dle " " … 2	5-75 6.00 8 too		rden and Gravel Rakes Garden	n. Grave	cline	e ended Dec. 21 there of 2/6 in London with demand. Spanish So
Sof, L'E H'dle Sq. pt.	9. 25 700, 7.75 701, L	Pride spades, Black	5.00 10 46	64	per doz.\$4.50	5-	75 Silve	r had given way to £1. Pig to £14. 15/ @ £15
539, 45 Rd. pt, 44	7-75 70E,	Scoops.	5.28 13 16	46	5.25 	5.1	factu	res of Lead are in monote: Bar. 5¢; Pipe.
5339 44 DA Spring-nt, Shovels	8.85 704,	Ames's, Cast Steel, Polished 2	14.50 14 44 15.00 15 44 15.50 16 44	46		6.5	Tin-I	ined Pipe, 12¢; No.
534) Mu. Dyn mg y					*	1		

#### IRON.

-The demand for Pig ing. We continue to . 1, \$16.50@ \$18; Foun-@ \$16.50; Gray Forge,

ere is but little Scotch The arrivals have been accounted for, in a small iculties of navigation for e demand is very quiet, ecording have transpired Quotations remain as be n, \$19.50 @ \$20; and

and for Steel Rails is it has been for a long 000 to 25,000 tons are re ek. Prices are firm at t our last writing, viz., We quote Iron Rails, at cording to quality, sec-

ear of the sale of 1000 on private terms. We @ \$19.

no demand, or next to ap Iron. No sales are No. 1 Wrought, from

#### TALS.

ave been limited to erior at 16¢, summing 20,000 pounds. This is re, while Baltimore is much. No later tele-eived from London.

y statistics have been W. Heyne & Brother, prought forward from Production of Lake Su-Production of Lake Su-8,000,000 fb.; do. from o, giving a total pro-year of 46,500,000 fb., 0,000 fb. The home con-4,000,000 fb., including ridges for export, and Copper, 13,000,000 fb., a 1st January, 1879, of 7,500,000 on December on Mining Journal of the following: "There the following: "There ations only in the price y amounting to more most, and the market most stationary. The st., in Liverpool and tons, against 23,662 or a reduction of 274 s for the first half of aphed 1300 tons, and ers were only 1200 at the figures on Janu-onsiderable reduction ls. At the same time the supply, compared years, but it is chiefly being an excess this 7 of about 5000 tons, more than in 1876. a favorable for this so much doing just e mostly very bare re mostly very bare
is no difficulty in
tious delivery, but
owing to the low
of exchange." Our
West Coast have ate Nov. 23. They chili), that the pro-large as ever. Manuand the combination nged, are nomina g Copper, 20¢; Bra-¢. American Yellow ¢. American Fellow, Yellow Metal Bolts, w Sheathing Metal, ntinues to be lifeless,

little demand. We  $\langle \phi \rangle$ ; English Refined,  $\langle \phi \rangle$  all large  $\langle \phi \rangle$  quote December fe quote Decement, 13½, and Janurts from Singapore hus, during the month were shipped to the 470 tons to Engnow afloat for altogether, about fe foreign markets nward tendency. Sing-picul, and London, g extracts from letters and Australia by last Australia by last Tron.

MCMM. Packages, 4
Packages, 4
Packages, 4
Cartridge boxes, 1
Schoverling & Daly,
Guns, cs., 2
Ward Asline, Cutlery, cs., 3
Wiebusch & Hilger Hdw.
Co.
Anvils, Cutlery and Hdw., pkgs., 118
Order, Cutlery, cs., 5
Bales, 5
Bundles, 60

Iron.

MCMM. Packages, 4
Packages, 4
Meyer & Geiger
Cartridge boxes, 1
Schoverling & Daly,
Guns, cs., 2
Ward Asline, Cutlery and Hdw., pkgs., 118
Order, Cutlery, cs., 5
Bundles, 60
Tin plates, bxs., 598
Order, Lead, pigs, 1260
Spelter, plates, 849 and now. Cheaper

Lead.—None but small jobbing lots have changed hands since our last, at \$4\psi\$, which is the price for Common Domestic, while Refined is worth \$4\psi\psi\$ @ 4.15\psi\$. During the week ended Dec. 21 there was again a decline of \$2\psi\$ in London without stimulating the demand. Spanish Soft Lead without Slyver had given way to £14. 15\psi\$, and English Pig to £14. 15\psi\$ @ £15 per ton. Manufactures of Lead are in moderate request. We quote: Bar, \$5\psi\$; Fipe, \$5\psi\$; Sheet, \$6\psi\$.

Tin-Lined Pipe, \$12\psi\$; No. 1 Solder, \$10\$; all less \$10\psi\$ to the trade.

Spelter and Zinc.-Domestic Spelter remains dull at  $4\frac{1}{2}\phi @ 4\frac{1}{2}\phi$ ; Silesian may be quoted  $5\frac{1}{2}\phi$ , nominally, and Bergenport from Lehigh Ore,  $9\phi$ .

Sheet Zinc-Is steady at 61/4 @ 61/2¢, for

Nickel—Is sustained at \$1.25, for Wharton's, with a moderate business transacting at this figure.

Antimony.—This metal is firm at the late improvement, and may be quoted 12¢@ 121/2¢, according to brand.

#### **EXPORTS**

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the Week ending Jan. 7, 1879 :

British West Indies.  Quan. Value.
Quan Value
Idw., cs 24 \$376 Mf. iron, pkgs 11 96 Pl'd ware, cs 2 80
Mf. iron, pkgs 14 61 Finware, cs 5 64 Walls, pkgs 114 333
New Zealand.
fach'y, pkgs. 139 14,574 Idw., cs
in Africa. g. imp., pkgs 110 1,520 ff. iron, pkgs 54 645
The state of the s

Mf. iron, pkgs 54 645 Nails, kegs... 61 205 Hdw., cs..... 140 3,105 Antwerp. Mach'y, cs.... 1 150 United States of Co-Dutch West Indies. lombia. Hdw., cs..... 34 Pumps, pkgs. 3 Nails, kegs... 21 Mf. iron, pkgs 6 1,500 42 695,405 476 439 113 89 3,801 397 72 220 138 1,007 2,353 Rotterdam. Hdw., cs..... 33 1,239 Ag. imp., pkgs 32 1,375 Bristol. Glasgow. 661

Hdw., pkgs... 13 Ag. imp., pkgs 12 Liverpool. Mach'y, pkgs. 85 3,579
Cop. wste, bbls. 32 1,405
Mf. iron, pkgs. 13 188
Ag. lmp., pkgs. 12 1,100
Hdw., pkgs. 12 0,1896
Wire w'rk, pgs 10 520 Brazil. Brasil.

Mach'y, cs.... 76
Pumps, pkgs... 20
Tinware, cs... 3
Mf. iron, pkgs 42
Pit'd ware, cs. 5
R.R.m's., pgs. 31
Hdw., cs... 301
Barrows.... 404
Ag. imp, pkgs. 50
Car mtls., pgs 22
Cutlery, cs... 9
Wire, pkgs... 92 7,251 1,360 155 781 702 3,650 4,699 800 1,288 3,345 1,015 1,121 China. Hdw., cs..... 9 Mach'y, cs.... 4 180 276 Cuba. Irons, pkgs... 23 Hdw., cs..... 93 Mf. iron, pkgs. 7 Ag. imp., pkgs 7 Mach'y, cs... 6 Barrows.... 56 254 62 Mexico. Porto Rico. Hdw., pkgs. 20 Lead, coils... 10 Mach'y., pkgs. 5 Nails, kegs... 25 Ag. imp., pkgs 9 667 220 739 57 124

#### IMPORTS

225

Of Hardware, Iron, Steel and Metals into the Port of New York, for the Week ending Jan. 6, 1878:

Bars, 2338 Naylor & Co. Pig, tons, 360 Spiegel, lots, 1 Order, Bundles, 220 Sheet, bdls., 105 Spiegel, lots, 1 Spiegel, tons, 200 Hardware. Boker Hermann & Co. Cutlery, pkgs., 19 Bloomfield & Co. Bloomfield & Co.
Guns. cs., 2
Brookhahne Wm.
Cutlery, cs., 1
Fales T.
Gun stocks, pkgs., 3
Hattersly J.
Wire, bxs., 1
Hecht Bros.
Cases, 1
Moore's John P. Sons,
Gun caps, cs., 4
McKinless J. A.
Packages, 4 Steel. Brown William, Brown William, Cases, 17 Bundles, 248 Sanderson G. & Co. Mdse., 1 Order, Rods, bdls., 52

Hayti. Mf. iron, pkgs 49

#### OLD METALS, PAPER STOCK, &c.

Waste Paper and Scraps..... Kentucky Bale Rope ...... Tarred Shaking........... Grass Rope .....

#### COAL

Trade during the past week has been very good. The small stocks in the yards and among consumers, combined with the increased domestic demand occasioned by the severe weather, have greatly stimulated the market. In addition to this, the heavy snows and extremely cold weather at the mines, have reduced the production very materially. Indeed, from some districts we hear that only a quarter of the usual tonnage has been sent down. Owing to various causes, there has been considerable delay in shipments. During the latter part of last week, high winds made it almost impossible to move boats in the harbor, while the formation of ice was so rapid as to greatly in-terfere with harbor towing since that time. Most of these troubles are now over, but we still hear of complaints from the dealers that they cannot get Coal.

Prices are firmer, and on some sizes full

quotations are actually obtained. quotations are actually obtained. The do-mestic sizes are scarce. Chestnut is espe-cially so, and its price is fully up to quota-tions, as is that of Lehigh Lump. The other sizes seem to be shaded somewhat. other sizes seem to be shaded somewhat. The market, however, seems to be gaining strength, and it is quite possible, should the cold weather continue and the same difficulty be met in making shipments, that the quotations will be fully realized.

Owing to ice and the roughness of the weather, freights eastward have taken a

jump upward. During the worst of the weather the past week, \$2 was asked to Boston, but with a return of better weather, it has dropped to \$1.75. To Providence \$1.25 has been asked, though at the moment of going to press \$1.15 is the highest quota-tion. We believe that in one instance this latter price was paid. New Haven is frozen up, and freights are merely nominal. When the harbor opens we shall expect the price to drop very considerably.

The talk of a combination still goes on,

The talk of a combination still goes on, but, until the companies have more inducement than at present to enter one, it seems hardly likely that there will be any serious steps taken in that direction. Much of the talk about a combination seems to us as intended more for the customer than for any tention. real purpose of uniting the companies.

Taken in all its aspects, the trade seems now to be in a very satisfactory state, both for producer and consumer. It is reported that next week there is to be a reduction of tolls upon the Lehigh Valley, and that after that takes place more Lehigh will come to mar-

#### PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St. PHEADELPHIA, Jan. 7, 1879.

The year opens with a quiet but confident feeling in business circles, and although prices of some descriptions of Iron seem to be rather unsettled, there is no expressed fear of any important decline. Inquiries for Machinery and Machine Tools indicate a satisfactory spring trade, and in almost every direction we hear expectations of bet-ter times. At the Baldwin Works a very important order has been received since the first of the year, and they are kept pretty first of the year, and they are kept pretty actively employed, notwithstanding their large capacity. We are not at liberty to name the particulars, but may state that orders for about 20 locomotives have been received during the past week.

There are but few changes in firms or partnerships to notice this year. In the de-

an honor to the trade.

The firm of Cabeen & Co. now consists of

Von A. Cabeen and Horatio B.

Beatty.

Mr. David Reeves, son of the late S. J.
Reeves, has been elected president of the
Phonix Iron Campany.

Mr. Percival Roberts, Jr., has been admitted into the firm of A. & P. Roberts &
Co., of the Pencoyd Iron Works.

Mr. Wm. Atkins, of Pottsville, Pa., has
been admitted partner in the firm of J. F.
Belley & Co.

Bailey & Co.

Pig Iroi e yea feeling, and with some degree of doubt as to the immediate course of the Iron market. A larger and a more healthy business seems anticipated as the season advances. but, in the meantime, there is the same caubut, in the meantime, there is the same cau-tious disposition among buyers as noticed during the past year. All idea of an imme-diate advance has been thoroughly dissi-pated by the unsettled condition of the Coal trade, and purchases of Pig Metal will probably be postponed, as far as possible, until the market assumes some definite com-plection. According to the figures presented last weak there seems to be no margin for last week, there seems to be no margin for profit, even at the best figures quoted; but a reduction in the price of Coal, equal to 50¢ \$\partial \text{ton on Iron, being announced to-day,} leads buyers to expect a corresponding reduction to them. It has been understood duction to them. It has been understood that the furnaces have had special rates on Coal during last season, and that the decline for that reason, so far as they are concerned, is valueless. In any case, the effect on the market is seen in an indisposition to purchase unless concessions are made, and for chase unless concessions are made, and, for the time being, business is inactive and un-settled. Aside from the Coal question, a more cheerful feeling is manifested, and, when prices become fairly established, a steady and increasing demand is looked for. Prices are nominally unchanged, but transactions, since the holidays, have been few in number and trifling in character.

to have little effect upon prices, and so long as furnaces continue to supply Iron without regard to cost, just so long will the market remain in the same unsettled condition as during the past year. The hope of improvement seems to be based upon expectations of increased demand, which, of course, is the surest remedy for a sick market. The point of uncertainty is, whether the demand will come in time to prevent the shading in prices, which, at present, seems far from improbable. We are informed that a sale of 2000 tons Forge Iron has been effected at the full market price, and that there are nu-merous orders ready to be placed at prices a fraction below the asking rates. In the meantime, sales of small lots are reported at \$17 @ \$18 for No. 1 Foundry, \$16 for No. 2 Foundry, and \$15 @ \$15.50 for Gray Forge, with a fair degree of firmness among

Muck Bar.—No sales reported; \$30 @ \$33, according to quality, is the usual asking price for Philadelphia delivery.

\$33, according to quality, is the usual asking price for Philadelphia delivery.

Blooms—Are very dull, and no sales of any importance have been reported for some time past. Quotations are nominally as before, viz.: Blooms (2464 b), \$38 @ \$39; Northern Ore Blooms (2240b), \$33 @ \$37; best quality Charcoal Billets (2240 b), for wire and steel purposes, \$58 @ \$60; Bars do., \$62.50 @ \$65; Sheet Iron Blooms, cornered (2464 b), \$53 @ \$55; Cold-blast Charcoal Plate Blooms, \$50 @ \$53; run-out Anthracite, \$45 @ \$47.50. thracite, \$45 @ \$47.50.

Structural Iron .- The year opens with a feeling that business will be active, and although only small lots have been placed so far, the outlook, as to demand, is said to be quite encouraging. Prices are not par-ticularly firm, however, and it is not un-likely that immediate orders of a desirable character would be accepted at as low rates as were current at any time during rates as were current at any time during 1878. There has not been enough done since the holidays, however, to indicate what shape the market will take, and the large capacity for production, in the opinion of the trade, seems to quite off-set the expected large demand. Sellers are thoroughly alive to new business, and sharp competition is met with in the case of desirable orders. The only contract reported as few is one of The only contract reported, so far, is one of about 300 tons for a bridge near Toledo, Ohio. Prices are said to be very low, and indicate a keen desire for business by the parties who secured the order. We quote: Angles, 2.1¢ @ 2.3¢; Tees, 2.3¢ @ 2.4¢ Beams and Channels, 2.6¢ @ 2.8¢, accord ing to specification.

Plate and Tank Iron.—The demand for small lots is quite active, and prospects of a large trade are thought to be fairly encour-aging. Sales amounting to several hundred tons have been made since the first of the year, but prices show signs of weakness, and most of the business has been done at inside figures. The mills are anxious to secure a reasonable amount of work to start on, anticipating an improvement in prices later on iticipating an improvement in prices later on. In the meantime all that can be said with certainty is, that competition is very sharp, and nothing but a large demand is likely to sustain the market. Such a demand is one of the things hoped for, and with the favorable outlook generally, such an anticipation is probably well founded. We quote Common better with the control of the Probably well founded. We quote Common Plates, 2.1¢ @ 2.3¢; Tank Iron, 2.3¢ @2.5¢ C. No. 1, 2.4¢ @ 2.6¢; Shell Iron, 2.75¢ 2.9¢; Flauge Iron, 3.7¢ @ 4¢; Solid Firebox 4.85¢ @ 5¢, and Best Bloom, 5.5¢ @ 6¢.

Sheet Iron.—There is a fair demand considering the season, and a greater willingness to buy quantities than usual. Selltrade has lost one of its most respected members. For upward of 25 years he was connected with the firm of Cabeen & Co., and leaves behind him a character which is an honor to the trade.

The firm of Cabeen & Co. in a dull season, except for such small lots as may be absolutely required. On the other hand, manufacturers want a few good orders to start their mills on, so that it is quite likely that the market for large lots will open at about the closing prices of December, while small lots will probably comcember, while small lots will probably command a small advance. We quote for retail lots as follows: Common Sheet, No. 20 to 23, 2.9¢ @ 3¢; No. 24 to 26, 3¢ @ 3.1¢; No. 27 to 28, 3.2¢ @ 3.3¢; Best Refined Sheet, No. 25 to 28, 3.3¢ @ 3.4¢; No. 22 to 24, 3.2¢ @ 3.3¢; No. 16 to 21, 3.1¢ @ 3.2¢; Best Bloom Sheets, No. 25 to 28, 5.2¢ @ 5.3¢; No. 22 to 24, 5.1¢; No. 16 to 21, 4.8¢@4.9¢ Refined Plates or Blue Annealed, 5-16 to 16, 2.4¢ @ 2.5¢; American, R. G., 5-16 to 16, 3¢ @ 3.1¢; Best Bloom, 5-16 to 16, 4.9¢ @ 5¢; A Patent Planished, 10½¢; B Patent Planished, 9½¢; Best Bloom Galvanized 45 % discount: second quality 55 %. vanized, 45 % discount; second quality, 55 %; extra discounts for large lots.

Bar Iron.—A better feeling seems to prevail, and two or three lots of upwards of 200 tons each have been taken since the opening of the year at the full prices current during the past month. Several of the mills appea to be well supplied with orders, which, although at low prices, probably, for the time being, has taken them out of the market. There is an expectation of a heavy demand during the spring, and as stocks are low buyers are endeavoring to place their orders, whenever they can do so, to advantage. There are still some complaints of dulness, but the belief in a larger volume of business, whether well founded or not, is almost universal. In course of a week or ten days the market will probably become control but at present the outlook is demand during the spring, and as stocks ar more settled, but at present the outlook is considered brighter than it has been for a long time past, and manufacturers and merchants take a decidedly hopeful view of matters. Prices are unchanged. Common Iron, at 1.5¢ @ 1.6¢; Fair to Good, 1.7¢ @ 1.8¢, and Best Refined, 1.9¢, firm.

Steel Ralls.—There is nothing specially

in number and trifting in character. The fact of additional furnaces being put in blast is discouraging as regards prices, and, as the largest consumers are fairly supplied with stock, they are not likely to come in to the market at present, unless inducements are offered. Notwithstanding the apparent steadiness of holders at this writing, the indications seem to favor lower prices; and steady production is going on, and unless consumers are, by their needs, forced into purchasing, in a somewhat unexpected manner, it is difficult to see how the market can need to favor lower prices; and they are not likely to come in to be sustained. The question of cost appears

later on; but as there is a pretty steady demand for small lots, manufacturers are somewhat indifferent about large orders, unless prices and terms are made reasonably satisfactory. We quote, \$42 @ \$44, at mill, according to location, as the usual asking price, the 10,000 tons to the Northern Pacific having been sold upon this basis.

Iron Rails,-The market continues steady and firm, with several sales of small lots, and inquiries for lots amounting in all to 8000 or 10,000 tons. Most of these will probably result in actual business in course of a few weeks, but there is usually a considerable amount of preliminaries before definite arrangements can be made. are more than ever disposed to insist upon cash or unquestioned security before accepting orders, which may be regarded as evidence that the trade is in a healthy condition. A large business has been done in light Rails for export, and although at the moment there is less demand than there was

ward of \$20 could be obtained for a fair average quality, although one or two small lots have been sold at that figure. Buyers are anxious to fill their orders, however, and \$20 @ \$20.50 would no doubt be readily paid for prompt deliveries. Sales since the first of the year by Philadelphia parties amount to over 10,000 tons, as follows, f. o. b. New York, \$18.75; on cars at Harrisburg, \$21, and several thousand tons delivered in Pittsburgh at \$22.50 @ \$23.50. Market very firm, latest sales reported being

Scrap Iron.-The market is a little quiet out prices are steadily maintained, and good qualities command full prices, say, Wrought, 20 @ \$22.50; Cast, \$14 @ \$15; Steel Springs about \$34 @ \$35.

Nails.—There has been quite an active demand, and large sales are reported at very slight concessions from quoted rates. There is more firmness among holders than we have noticed for months past, and it is quite likely that bottom has been reached. We quote 2.10¢ as the rate for large lots.

#### PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, PITTSBURGH, PA., Jan. 7, 1879.

The extreme cold weather of the past two The extreme cold weather of the past two weeks, which appears to have prevailed throughout the entire country, has had a bad effect upon general business, which is nearly always dull during the time in question. With the thermometer from 6 to 14 degrees below zero, it is not to be expected that anyone would give much attention to anything, excepting to keep themselves warm. Not only has the cold weather interfered with ordinary business, but it has kept back the work of taking stock and annual repairing, so common at this particuannual repairing, so common at this particular time. The only favorable feature to note in connection with this cold snap, the like of which has not occurred for several years, is that country roads are in good condition; and, as soon as it moderates somewhat, farmers will commence to dis-pose of their products, in order to obtain pose of their products, in order to obtain means to purchase such articles as they are in want of, and business will soon be bene-fited thereby. Bad roads have more to do with business than people generally have any idea of, and with good "sledding," stock taking accomplished, specie payments resumed, and nothing politically to disturb or distract the courter there's resumed, and nothing politically to disturb or distract the country, there is no reason why trade in nearly all its varied depart-ments should not soon give evidence of a decided and healthy improvement.

a decided and healthy improvement.

In regard to the general Iron trade, the outlook is considered favorable for an increased business this year, as compared with 1878, and it is hoped and expected that more remunerative prices will be obtained. Your reminerative prices will be desired a num-correspondent last week interviewed a num-ber of our most prominent operators, and without an exception, they all expressed themselves hopefully in regard to the future—some of them, as might be expected, more so than others. This important interest in the West is in better condition, in time since the panic. Most of those firms whose credit was impaired, and who were obliged, in order to raise funds, to sacrifice their products, have been wiped out, and nore remunerative prices are expected in onsequence. Indeed, it is worthy of notice that the market has been much firmer for some months past, and consumers, as well as producers, have commenced to think that hard pan has about been reached. The Western Iron and Nail Associations meet here this week, and if anything important is developed, The Iron Age will be duly ad-

vised by telegraph.

Pig Iron.—Business has been very dull the past week, but there is considerable in-A good many "trial lots" are out, deal being sold within the next few weeks. Our commission merchants are hopeful of the future, not only of an increased busin but of better prices. One of them, on being questioned in regard to the latter, replied that he did not look for any immediate improvement in the lower grades, as, according to the latter that the lower grades, as, according to the latter than the lower grades. ing to his belief, the production was in excess of the consumption; but, as the stock of Standard Mill Irons was small and the production light, he looked for these to bring an advance soon. Consumers, as a rule have very little stock, and as soon as they all get started up again, an increased de-mand appears inevitable, and on this sellers base their faith largely of better prices.

vailed, as they were obliged to sell in order to raise money, and they thereby established a price which others had to accept, if they wanted to sell. Now, however, the situation is different; most, if not all, of these weak and disabled furnaces have been wiped out, and those who have weathered the storm are not forced to realize, but able to hold for full market price. Stocks in first hands in the West are light, as nearly all the furnaces in blast have been working on furnaces in blast have been working on orders, and producers, as a rule, have made it a point for a year or more past not to accumulate. Bituminous Coal Smelted Irons, \$18.50 @ \$20, 4 mos., for Foundry, and \$17.50 @ \$19.50 for Mill, the outside figure for all ore Red-short. Coke Irons, \$16, cash, @ \$16.50, 4 mos., for Mill, Eastern Cold-blast Charcoal selling all the way from \$29 @ \$32, 4 mos., according to quality. Bessemer Iron nominal at \$20, 4 mos. No Bessemer Iron nominal at \$20, 4 mos. No sales reported for some time. Charcoal Bloom \$50 @ \$60.

Manufactured Iron.—At the present time business is dull; stock-taking, annual settlements and making repairs, appear to be absorbing the time and attention of our manufacturers just now more than anything else. They are anxious to ascertain to a certainty whether they made or lost money during the year so recently closed, and until satisfied on this important point, they will not make much effort looking they will not make much effort le they will not make much effort looking toward new business. Moreover, as current rates afford no margin and an advance soon is not improbable, manufacturers are not solicitous about business, and it is doubtful if large contracts could be made either for present or tracts could be made either for present or future delivery at prevailing prices; indeed, the policy of makers just now is to sell only small lots to regular customers, from which it is evident, as already stated, that an advance soon is expected. We continue to quote on a basis of 1.75¢, 60 days, for Bars, with the usual two per cent. off for cash. Another meeting of the Western Iron Association takes place here this week, when the proposed new card will again be discussed, and possibly it may be adopted.

Nails.—There is nothing particularly new

Nalls.—There is nothing particularly new to report, excepting a probability that the proposed pooling system is likely to fall through, the Wheeling manufacturers generally, although favorably impressed with it at first (and it was there that it originated), it is understood at first (and it was there that it originated), it is understood, are not now disposed to go into it. It is believed that the proposed arrangement would have a good effect if faithfully and energetically carried out, but so many arrangements have been tried within the past few years and failed, that the trade generally have lost confidence in them. The recent advance, however, is fully maintained, and a further advance is not improbable between now and the opening up of the spring trade. We continue to quote at \$2.05, 60 days, for lots of 200 kegs and upward, with the usual 2 % off for cash.

Rails.—Steel Rails are quoted steady at Kalls.—Steel Kalls are quoted steady at \$43.50 @ \$44, cash, delivered free on cars in Pittsburgh. Old Iron Rails firm, in light supply, and with some inquiry; prices are tending upward; sale of 2500 tons at \$23.50, cash. It is reported that some of the Wheeling Nail factories are in the market for old Pails. Steel Pail Falls and Charles 1911. Rails. Steel Rail Ends and Steel Bloom Ends, \$28 @ \$32, cash at mill, according to lengths; Steel Blooms, \$42 @ \$45; do. Bil-lets, \$44 @ \$47, cash at mill, according to

Wrought Iron Pipe.—Business is still month is expected. No change in discounts; 35 and 40 off new card, on Gas, Water and Steam Pipe, and 40 on Boiler Tubes. It is reported that in the East a larger and better discount is being offered on Boiler Tubes ter discount is being offered on Boiler Tubes. The butt welders were to have held a meeting in Philadelphia yesterday, and the lap welders were also to have met there on the 9th, but it is understood that the latter meeting has been postroned one week

Steel.—The demand for all kinds of Steel is light just now, as it always is at this particular time, but it is expected that orders will soon commence to come forward freely. There is every indication that the business of this year will be fully equal to that of 1878 in point of volume, and manufacturers are hopeful of being able to secure better prices.

Scrap.—The movement in all kinds of but an increased demand is expected within the next week or two. No change in prices, which are believed to be down to bottom. No. 1 Railroad Wrought, \$21 @ \$22, net; Old Car Wheels, \$18.50 @ \$19.50, gross; Cast Borings, \$10.50 @ \$11; Wrought Turnings, \$14 @ \$15, net; Blacksmith Scrap, \$20 @ \$21; Boiler Scrap, \$21 @ \$22; Car Axles, \$27 @ \$28; Car Springs, \$30 @ \$31.

Coke.—The market continues firm, with no apparent abatement in the demand, and this being the case prices, as might be expected, are still tending upward; we now quote at \$1.25 @ \$1.30 \$2 ton, delivered free on cars, at the mines. The consumption the past year was the largest, probably, in the history of the trade, and the indications are that the demand this year will exceed that of 1878

Coal.—The continued cold weather is favorable to the Coal trade. Those of our op rators who have Coal in the down-river markets have no fault to find with the situation. In addition to cutting off the source of supply, the cold snap will largely in-crease the consumption, and prices will advance, if not already advanced, at points in question. Those operators who ship by rail have orders for about all the Coal they can furnish, and prices are firm and tending upward. We now quote at  $434 \neq @ 5 \neq $$  bushel, delivered free on cars at works.

rially since the first of the year, and prices. both on the raw article and the product, have advanced. The business of Pittsburgh this past year was the largest, probably, in the history of the trade. The Standard Oil Co., which owns and controls about nineteentwentieths of the refining capacity of Pitts-burgh, report their business for the year as

follows:  Shipments of To Philadelphia	Gallons.	Bbls. 822,546
" Baltimore " New York	23,562,050 8,613,500	561,001 205,083 90,476
Total	70,522,475 89,621,528	1,679 106 2,133,846

#### CHATTANOOGA. .

Office of The Iron Age, Market and 8th Sts., CHATTANOOGA, Jan. 4, 1879.

Business during the past week has had Business during the past week has nad two or three drawbacks to contend with— cold, mud and holidays. The latter has helped the sale of "small traps," and hin-dered all heavy trade. Despite these hin-drances, inquiry for some lines of metals, has been in excess of the same week in the past, and purchasers find it more difficulteach succeeding day to purchase at present quotations. The week began with biting cold weather; in the middle it was raw, muddy, and exceedingly disagreeable. At the end—Friday and Saturday—we have the coldest weather felt in this valley for several

Pig Iron.-The demand is rather better, Pig Iron.—The demand is rather better, though the intense cold impedes business. There is especially an improved demand for Car-wheel metals. We quote: Coke Irons, No. 1 Foundry, \$17.50 @ \$18; No. 2, \$15.50 @ \$16; Gray Forge, \$13.50 @ \$14; White and Mottled, \$11.50 @ \$12. Hot-Blast Charcoal—No. 1 Foundry, extra, \$20 @ \$21; ditto, \$18 @ \$20; No. 2 Foundry, \$16 @ \$18; Gray Forge, \$15 @ \$17; White and Mottled, \$15. Cold Blast Charcoal—Car Wheel Metal. \$22.50 @ \$27.50; do. Extra Standard. tled, \$15. Cold Blast Charcoal—Car Wheel Metal, \$22.50 @ \$27.50; do., Extra Standard, \$24 @ \$29.50; Forge, \$17 @ \$22.

Muck Bar—\$27 @ \$34. Old Rails, \$18. @ \$18.50. Old Car-wheels, \$18.

Ores.—Brown Hematite, 50 to 56 %; per ton, \$1.75 @ \$2.25. Red Fossiliferous, 50 to 56 %; per ton, \$1.70 @ \$1.90. The above prices for ores delivered in Chattanooga on ars, or on the wharf from flat boats.

Nails.—There is no change in the Southern market, though the demoralization seems to have come to an end, and the trade is rapidly settling down to a steady condition. We quote at \$2.25 rates, with usual discourtion job lots. Nails.-There is no change in the South-

Manufactured Iron.—The mills have all they can do. They were kept going double turn nearly all the holidays. There is no change in price, but products and stocks are held strongly. We quote Bar at \$2; Railroad Spikes, \$2.50; Light Rail, \$2.25; Track Bolts, \$3; Trestle Bolts, \$4.

Coke.—Washed foundry, 13¢ to 15¢ per bushel, free on cars in Chattanooga. Furnace Coke in full supply at \$2 @ \$2.50 per

Coal.—There is a lively traffe. Prices sharply stiffened by the cold weather. We quote: Strictly Lump at 12¢ @ 14¢, delivered. Run of mine to manufacturers, \$1.50 @ \$1.75 per ton.

Pig Lead.—From local mines 4¢. Ingot Copper.—The slight advance re-alized is maintained. We quote at 18¢.

Iron Rails.—The demand is fair, mostly for rerolling. Holders are firm at \$34 per

#### BOSTON.

JAN. 5 .- Pig Iron continues in light de-JAN. 5.—Pig Iron continues in light demand, and this will probably be the case for some time to come. At the shipping ports Foundry No. 1 is quoted at \$16.50 @ \$17; Foundry No. 2, \$15.50 @ \$16.50; "Gray Forge, \$14.50 @ \$15.50. There is nothing new in the market for Scotch Pig. Eglinton is still held at \$22.50, Glengarnock at \$24, Gartsherrie at \$25 and Coltness at \$26. Another decline abroad is cabled this week. Nails have been in fair demand. week. Nails have been in fair demand, jobing now at \$2.25 @ \$2.30. For 100 keg lots \$2.20 is the price. Sheet is selling at 3¢ @ 3½¢ \$ B. Russia is quiet at 10½¢ @ 11¢. We quote English Spring Steel at 7¢ @ 8¢, gold; 8¢ @ 11¢ for German; of @ 11 for Machinery; 14 @ 15 for Cast; of @ 11¢ for Macainery; 14¢ @ 15¢ for Cast; 10¢ @ 12¢ for Blister; 8¢ for American Spring; 13¢ @ 13¾¢ for Cast; 9¢ for Blister, and 7¾¢ @ 8¢ for Machinery. In Plate Iron there continues to be a fair degree of activity in Tank, which is selling steadily at activitier continues to be a fair degree of activity in Tank, which is selling steadily at 2½\$\phi\$. Boiler Plate is very dull, quoting 2½\$\phi\$ for No. 1 Charcoal; 2½\$\phi\$ of 2½\$\phi\$ for No. 1 Shell, and 3¾\$\phi\$ for Flange. Merchant Bar jobs at \$1.65 @ \$1.75. Copper rules dull, with light sales on the basis of 16\$\phi\$ for Lake. For manufactures we quote: New Sheathing at 24\$\phi\$ @ 26\$\phi\$. The outside price rules in small transactions, but large buyers are purchasing at the inside figure. Bolts are quoted at 26\$\phi\$ @ 28\$\phi\$. Yellow Metal Sheathing continues easy, quoting 12½\$\phi\$ @ 13\$\phi\$ for English, and 13\$\phi\$ @ 13½\$\phi\$ for American; Yellow Metal Bolts, 18\$\phi\$ @ 20\$\phi\$. Lead is steady, and there is a trifle firmer feeling. We quote: Pig, 4½\$\phi\$ @ 4½\$\phi\$. Lead is steady, and there is a trifle firmer feeling. We quote: Pig, 4½¢ @ 4½¢, currency; Sheet, 5½¢; Pipe, 4¾¢; Tin-Lined Pipe, 12¢; Bar Lead, 4¾¢; all of these excepting Pig are subject to the usual trade or 10 ½ discount. Antimony is in light demand, but is steady, and we quote 12¢ @ 12½¢. Spetter is dull, being held at 4½¢ @ 4¾¢ for the various grades. Tin is dull and easy. We quote: Straits, 15½¢ @ 15½¢; Banca, 18¢; Refined English, 15¢ @ 15½¢; gold. We quote Plate: Charcoal, I. C., \$5.75 @ \$6; Coke, \$5 @ \$5.25; and Charcoal Terne, \$5.40 @ \$5.50, gold.—Commercial Bulletin. cial Bulletin.

#### CINCINNATI.

Messrs. E. L. HARPER & Co., under date of Messys. E. L. HARPER & Co., under date of Jan. 6, write us as follows: Confidence in the future has been greatly increased by the complete success of resumption of specie payment by the national government. Unquestionably trade has been getting upon a more solid and satisfactory basis. Failures are much less frequent, and of a less serious

character, and buyers generally manifest decidedly more readiness to pay cash when any inducement can be had off time prices. On the other hand (as directly illustrative of restoring confidence), sellers make much less difference between cash and time prices. Until recently it was an almost universal cus-Until recently it was an almost universal custom to allow \$1 per ton off time prices for cash, and at the present low prices this amounted to a large percentage. Now, discounts at the rate of 10% per annum is as much as is generally offered. Pig Iron.—The market opens for the New Year with a good general demand. Buyers are not afraid to take hold at present rates, and considerable disposition is shown to anticipate immediate wants. In a quiet, way, stocks in this section have been reduced during the year past to an extent that will probably be a surprise to those who have not been in a position to notice it. The stocks of Hanging Rock Charcoal in Ohio show a decrease from over 40,000 tons Jan. 1, 1878, to less than 20,000 tons Jan. 1, 1879, being over one-half, while the Stonecoal and Coke Iron in same district has run down from some 28,000 tons to about 7000 tons.
The Iron is generally in hands of a few parties, who have carried it for a long time, and are well able to hold on to it still. The present condition of the furnaces in Southern present condition of the furnaces in Southern and Central Ohio is as follows: Charcoal (Hanging Rock district), o furnaces in blast and 22 furnaces out of blast; Stonecoal and Coke furnaces (Hanging Rock, Shawnee and Hocking Valley districts), o furnaces in blast and 20 furnaces out of blast. If ironmasters continue the conservative course they have widely followed lately we see a reason. widely followed lately, we see no reason why the Iron trade shall not gradually and steadily reach a much more prosperous condition than we have had for a long while. Hor-blast foundat.
Hanging Rock C. C., No 1........\$21.00 @

and the second s	Anning district
n C. C., No. 2	19.00 @ 19.50
Alice No r Extra I M	(A)
" No. 1 " N. O	20,00 @ 20,50
" No. 1, N. O	19.00 @ 19.50
" No. 1 " N. O.  " No. 1, N. O.  Hanging Rock Coke and S. C., No. 1.	15.00 @ 19.00
8. C., No. 2	15.00 @ 17.00
Virginia Coke, No. 1	19.00 @ 20.00
No. 2	17.50 @ 18.00
Shawnee S. C., No. 1	18.00 @ 18.50
" S. C., No. 2	16,00 @ 17.00
Hocking Valley S. C., No. 1	18.00 @ 19.00
8. C., No. 9	16,00 @ 17.00
FORGE IRONS,	
Hanging Rock, No. 1 C. C	18.50 @ 19.00
Hanging Rock, No r Coke	16.50 @ 17.00
Longdale, No. 1 Coke	17.00 @
Ala, and Tenn. No. r C. C	17.00 @ ····
Red-short, No. z Coke	18.50 @ 19.50
Cold-short, No. 1	15.50 2 10.00
CAR WHEEL AND MALLEABLE	
Hanging Rock C. B	30.00 \$ 31.00
Cherokee C. B	28.00 @
Cherokee C. B. Southernand Western Brands	27.00 4 28 00

#### BALTIMORE.

Mr. W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, re-Jan. 6: A decided improvement in the volume of business is distinctly perceptible for the past week. Values rule firm and unchanged at angexed figures: Renned Sar 1rob, 34 to 2, Round and Square. Hoop iron, 15 wide and upward. Band Iron, from 15 to 4 in. wide.. Horse-shoe Iron. Norway Nail Rods. Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes. sizes...
Machinery Steel...
ast Spring Steel...
Homogeneous Steel I
Common Horse Nails 

Messrs. R. C. HOFFMAN & Co., Iron and Commission Merchants, No. 23 South Frederick street, report the Pig Iron market as follows, under date of Jan. 6: The Iron market remains unchanged. The demand fight, but prices are firm at about following

Auton .											
Baltimore !	Char	coal	W	he	el	In					
Virginia	41				4			 	**	26.00 @	28.00
Anthracite	No.	8				0 0		 		10.00 @	20.00
16	No.							 		18.00 @	40.00
44	No.	1						 		15.00 @	X7.00
8.6	Moti	led a	and	1 V	Vh	dt	B.,	 		13.00 @	14.00
Charcoal, C	Z. B.	Bloc	m	H			0			50.00 (3	52.00
14	0.0	Bille	ets.					 		50.00 @	55.00
Refined Blo	oms				0.0		0 0	 0		43.00 @	45.00

#### LOUISVILLE.

Messrs, GEO. H. HULL & Co., under date of Jan. 6 write us as follows: The market continues very firm. The sales made are at full figure, and we anticipate a further advance. The usual time, 4 months, is allowed on the quotations below:

FOUNDRY IRONS.

NO. 1 Hanging NOCK, Charcoal\$21.00 @ 22.00
No. 2 " 19.00 @ 20.00
No. 1 Southern, Charcoal 18.00 @ 18.50
No. 2 46 46 117.00
No. r Hanging Rock, Stonecoal and
Coke 19.00 @ 20.00
No. a Hanging Rock, Stonecoal and
Coke 18.00 @ 18.50
No. 1 Southern, Stonecoal and Coke 18.50 ( 19.00
No. a 45 47.50
"American Scotch" 18.00 @ 19.00
Silver Gray 16.00 @ 17.00
MILL IRONS.
No. r Charcoal, Cold-short and Neut'l. 16.50 @ 17.00
and Neutral
and Neutral 15.50 ( 16.00
No. 1 Missouri and Indiana Red-short. 20.00 @ 21.00
White and Mottled, Cold-short and
Neutral 14.50 @ 15.00
DAR WHEEL AND MALLEARLE IRONS,
Hanging Rock, Cold-blast \$0.00 @ 33.00 Alabam and Georgia, Cold-blast \$8.00 @ 20.00
Kentucky, Cold-blast 25.00 @ 30.00
Ponting, Com-ones 32.00 # 30.00

W. B. BELKNAP & Co., Iron and Steel mer-chants, Nos. 113 and 115 West Main street, under date of Jan. 6, report trade for the past week in pretty much the same condition, as the rivers are completely embargoed by frost. Such long-continued severe weather, the mercury dropping to and below sero, day after day, is almost unprecodented in this region. The streets are comparatively deserted, and the universal attention absorbed in the problem how to keep warm. Under such circumstances it is not necessary to quote the market further than to say that there is no disposition on the part of sellers to thaw out possible buyers disadvantage; but, as things now are, they by the offer of any concessions. Holders

are firm, and looking for a large trade and better prices. Apparently, the worst "frozen out" class of people are the Greenbackers. Every man you meet is an original hard-money man, and cannot remember that he ever thought resumption impossible or even difficult. This is one of the best signs of the good time coming.

#### RICHMOND.

Mr. Asa Snyder, Iron Merchant and Furnace Agent, writes as follows under date of Jan. 6: Business wholly inactive, hence quotations are nominal. The Ferral furnace is about to blow in, and the new stack at Low Moor is approaching completion.

at Low moor is approaching comp	neuon.	
American Scotch Pig Iron	21.50 @	22.5
Amthunoite Wo	19.00 @	20.0
No. 2		79.0
14 No. 1	17.00 @	18.0
Mottled	14.50 @	15.5
Coke, No. 1	10.00 @	20,0
44 No. 2	18.00 @	19.0
10 No. 3	16.50 @	17.50
Va. Cold-blast Charcoal, Cold-short	20,00 @	23.00
Va. " Neutral	27.00 @	28.0
Va. Warm-blast " Cold-short	18.00 @	21.00
Va. " Red-short	17.00 B	18.00
Old Rails	17.50 B	18.50
Wrought Scrap No. 1	17.00 6	18.00
Cast " (machinery)	15.00 (4)	16.00
Richmond Refined Bar Iron	2C. @	
Horse Shoes per keg	@	4.00
Mula " "	@	
Old Dominion Nails, Standard Size,	_	-
kee	2.25 @	
Freights to Philadelphia, \$1.40 per to	n of 2340	Ds.
by sail.		
Freights to New York, \$1.60 per tor	of 2240	Ds .
The section of side a dead delice her con		

### Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.) LONDON, ENG., Dec. 23, 1878.

THE DISTRESS of which I have spoken in some of my former letters grows worse week by week, and is at the present time truly appalling in a majority of the manufacturing districts of the country. From Glasgow, Dundee, Liverpool, Manchester, Newcastle, Darlington, Shoffield, Birmirch and Wolczekawston Sheffield, Birmingham, Wolverhampton, and many small places in South Wales and Cornwall, comes the cry of a famished people, on whose behalf every possible sixpence is being raised toward relief funds, which now exist in all the principal cities and towns. Much is being done, but more is needed; not merely as a matter of sentiment, but in order that the wolf of absolute ment, but in order that the wolf of absolute starvation may be kept from the doors of thousands of poor people. Probably Sheffield is worse off than any other place; for we hear that there the necessitous may be counted by the thousand, and the misery of whole households be seen in any of the districts of the town, except the villa-besprinkled West End. The published accounts, I may say, are confirmed, and more than confirmed, by my own private correspondence from the are confirmed, and more than confirmed, by my own private correspondence from the cutlery capital. The exceptional severity of the weather for a fortnight past has vastly increased the suffering, so that, although the well-clad and heartily-fed may rejoice over the "seasonable Christmas tide," it is a two-edged knife to the inhabitants of the two-edged knife to the inhabitants of the courts and alleys of the towns I have named. At Birmingham matters are not nearly so desperate; but there, too, relief is being afforded on a large scale, and the same is the case at Wolverhampton. There cannot be the shadow of a doubt that the results of the depression are altogether unprecedented, and that, to find anything approaching to an exact parallel, we must revert to the Corn Laws period, over thirty years ago. Not the least or last cause for despondency is found in the apparently utterly hopeless nature of the near future, of which nobody finds heart to speak good tidings.

THE CHRISTMAS HOLIDAYS

#### THE CHRISTMAS HOLIDAYS

will commence to-morrow afternoon, and will commence to-morrow afternoon, and bid fair to be extended, in most instances, over an unusually long period. Almost the whole of the ironmasters will, as usual, utilize the interval for stock-taking pur-poses, which, in every large establishment, occupy a fortnight or three weeks. By this means the new year will have been well inaugurated prior to the resumption of operations, and a considerable chance will have been allowed for the much-wished-for accumulation of orders. At home, matters in all the leading industries are so exceeding quiet that the interval cannot possibly yield a satisfactory product; but from the distant markets there is some little ground for presupposing the existence of a better tone. Whatever may be the result of the breathing time,

THE QUARTERLY MEETINGS of the ironmasters will be nigh at hand, their dates being about Jan. 8. So far as can at present be inferred, there seems little or no chance of any change being made in prices, all the information we possess being strongly conclusive that the existing rates strongly conclusive that the existing rates leave manufacturers, of common grades especially, little or no profit. At £7. tc/ for marked bars the list houses may, perhaps, be doing rather better than their smaller brethren, but even they will find it difficult to make additional concessions. Pigiron may possibly be declared down about half a crown, but whatever may be the official notification, it may be taken for granted that it will have been discounted. granted that it will have been discounted beforehand. Stocks in all parts of the country are so unprecedentedly heavy, that producers will find it necessary either to close up wholly for a time or to sell for such offers as individual transactions may call forth. A situation such as this is admittedly most unsatisfactory, but its conditions are so stern and unbending that the only re-

#### source is retirement or submission. YOUR EXPORT EFFORTS

toward enlarging your business with Mexico, Central and South America generally, and especially with Africa, command close attention here, where there is a settled and strong conviction that in the United States we have our most formidable antagonist. So far as Mexico is in question, some of our manufacturers and merchants are afraid that your proximity will operate to their

ern America with comparative equanimity. They look upon your "official" effort to capture Africa with much admiration, but that they are not inclined to concede all you that they are not inclined to concede all you ask for there, is evinced by the current talk there is of the formation of an African Trading Company on an immense scale, and with abundance of capital. The project sounds well, and reads nicely on paper, but, nevertheless, I suspect that, after all, private enterprise and capital will do the needfal. It is contain in either aventuality that ful. It is certain, in either eventuality, that there is business to be done with Africa; it is merely necessary to go the right way to

#### MUCH OF YOUR SUCCESS

seems to us to be owing to the circumstance seems to us to be owing to the circumstance that, with you, business is looked upon as being the most important object in life. The national business is, in short, the business of the entire nation. In this country it is not so. A long course of prosperity has produced an immense number of persons who not only have nothing to do with commerce or manufactures but look when those angaged. have nothing to do with commerce or manufactures, but look upon those engaged therein as being somewhat degraded beings. To be "in business" was, not very long ago, a sure bar against an entrance into good society, and is at this very moment regarded as a sinister mark with old-class members of the upper ten. Some of this ridiculous Plutocratic feeling has been rudely dissipated by the Duke of Argyll and others, who have sent their younger sens into the who have sent their younger sens into the city to acquire business habits—and business. Notwithstanding that fact, however, we are heavily weighted with drones in this country—a burden which your civilization has not yet acquired. You need not sigh your existence away after it. istence away after it.

SCOTCH PIG IRON has fluctuated during the week, but the warhas fluctuated during the week, but the warrant market is now quiet, with nothing special doing. In Connal's official stores there are 199,417 tons, as against 167,885 tons Dec. 20, last year. Total shipments to date have been 387,794 tons, of which 290,188 were foreign and 157,611 coastwise. The aggregate is 51,508 tons below last year. From Middlesboro' the imports have reached 282,932 tons, or 10,309 below last year to date. Ballast pig iron is now quoted 42/6 per ton. Writing from Glasgow, on Dec. 20, James

Writing from Glasgow, on Dec. 20, James Watson & Co. said: "Since the date of our last circular, the market for Scotch pig iron warrants has advanced. On Monday business was done from 43/ to 43/2½ per ton, closing quiet at 43/1, cash. On Tuesday the opening price was 42/10 per ton, closing at opening price was 42/10 per ton, closing at 43/ per ton. On Wednesday the market was firm, with transactions from 43/1½ to 43/3, cash. Yesterday we had a very strong market, with a good business done from 43/4 to 43/7½, cash, closing at 43/6 per ton. To day the market opened quietly at 43/5 and 43/4 per ton, improving again in the afternoon to 43/7, at which we closed sellers, buyers offering 43/6 per ton. Shipments last week were 6205 tons, as compared with 7122 tons for the corresponding week of 1877." We quote:

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										2	No.	T.	No.
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Gartsherrie,	6.6			,					×		.50	1	45/
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Summerlee,	4.4							٠	۰		. 48	15	43/
Langloan	6.6					 					. 52	1	46/
Carnbroe	66										. 45	1	44/
Calder, at Por	t Dun	da	g.								. 50/	1	44/
Glengarnock,													44/
Eglinton.		66									.44	1	43/
Dalmellington		4.0									44	1	43/
Shotts, at Leit	h										. 58/	1	47/
Kinneil, at Bo	ness.			 			,		,				50/

#### IN CLEVELAND

there appear to be at least two fairly wellengaged concerns—Bolckow, Vaughan &
Co. and Hopkins, Gilkes & Co. Last week
the former sent off about 1000 tons of steel
rails to Wellington, New Zealand, besides
several cargoes coastwise. Hopkins, Gilkes
& Co. are doing the Nerbudda Bridge for
India, as well as several lots of castings for
home and colonial gas and water works.
Into West Hartlepool considerable imports
of Swedish iron are coming just now, for the
Sheffield and Staffordshire houses.

#### IN YORKSHIRE AND DERBYSHIRE

a great strike of coal miners is said to be threatened, owing to the action of the employers in seeking to obtain a further reduction in wages of 12½ per cent. The newspapers tell us that 100,000 men are likely to come out on strike, but I, who know pretty nearly every pit in the two counties, know that there are not even 50,000 miners now employed therein. The number of men has been gradually reduced for many months past, so that there are 40 to 50 per cent. fewer than was the case a couple or three years ago. I fancy that there will, after all, be no general strike. Neither masters nor men can afford the luxury.

I have already spoken, and I regret that I am not able to say much that is encouraging or favorable here. The solitary oasis across which I have stumbled, is the statement that one cutlery house has received an order from the Cape market for 20,000 dozens of pocket cutlery. The skate manufacturers and dealers have reaped their harvest in a sort of whirlwind, the continuharvest in a sort of whirlwind, the continu-ance of the frost having cleared out pretty nearly every pair of skates that had been stocked for years past. One house is stated to have disposed of nearly 40,000 pairs dur-ing the past fortnight. In another instance, common German skates, bought in the sum-mer of 1873 at 101/d pre pair have all mer of 1877 at 10½d. per pair, have all in value. The sales of knitting machines moved off at 1/6 @ 3/6 the pair! Stocks and egg beaters sold by the Lamp Company having thus been cleared off, the makers are having thus been cleared off, the makers are working hard to keep pace with the current demand, which is still large. Acmes have gone off "like gunpowder," as also have all the best sorts of club skates. Some of the agents at Sheffield and in London had large holdings, but they have been got rid off, until et the present time money can't have until, at the present time, money can't buy 'em. I heard of J. G. Rollinshere, the other day, having to refuse 8/6 per pair wholesale, simply because he had not any on hand. The engineering firms of Sheffield are wretchedly off. One of them told me the other day, that almost the whole of their certly plant is lying idle, but the men decostly plant is lying idle, yet the men de-cline either to work longer hours or to accept lower wages.

IN STAFFORDSHIRE

is being conducted at a profit, and so small is the turnover that only about one-third of the total number of furnaces is in blast. At Lord Dudley's Coneygre Works, the only remaining furnace is about to be blown out. Other establishments will only be reopened after Christmas on the condition that the workmen agree to accept lower rates of re-muneration. The general wages payments are already so low that the men declare they cannot earn decent livings, but the only alternative to submission appears to be starvation

is moderately well engaged all round, and one or two branches are even said to be busy. The brass foundry firms are espe-cially noted as being full of work, a material impetus having been given to the trade by the existing rage for all kinds of brass furniture, fire-irons, fenders, &c., in the Queen Anne style. The so-called revival is, as a matter of course, utterly and supremely ridiculous, but while it lasts the brass founders and finishers are benefiting. For the time being the mediæval thrives on all sides, and steel is being extensively replaced by iron. The older and uglier anything is the better, provided it is of brass. An old fender, with massive fire-irons to match, owned, I remember, by my great grand-mother, would just now be deemed a perfect mother, would just now be deemed a perfect treasure. It is stated that American patterns in brass are being very successfully made in 'Brum, and that 'American bronze' is also being rivalled there. The metal rollers, bedstead makers, and certain other 'light' manufacturers, are all reported to be fairly well engaged. In the jewelry branches silver goods are predominant, and afford good wages to the operatives, although they are said to be in no great favor with the manufacturers or dealers, who reap but little profit therefrom, as compared with gold jewelry or imitation of that article de luxe. In presentation plate and the like, the business is good. I hear that Elkingtons have in hand a really magnificent set of plate for the Manchester corporation. The central plateau of this splendid service is forty feet long and most superbly designed.

superbly designed. SOUTH WALES AND MONMOUTHSHIFE are but indifferently engaged as regards iron. In the import ore trade the failure of Zurbina & Co. is reported, with heavy liabilities. Their stoppage has resulted from the difficulties of the Blenavon Company. Among recent shipments from Cardiff and Newport, have been 642 tons bars for Malta from Dowlais; 100 tons rails to Palmo by from Dowlais; 100 tons rails to Palmo by Jones & Co.; 1100 tons bars to Bombay by the Llynvi Company; 1320 tons rails to Bluff Harbor by Dowlais, and 10 tons to Maranham by Cory Brothers. At Newport, the American ship Dragon is expected to load 2000 tons rails to New Zealand, and the Swiftsure, rails for India. The tinplate trade remains steady, with prices ranging from 2/6 to 20/ for charcoal, and 15/ to 16/6 for cake plates of ordinary qualities. At Swansea copper is quiet.

#### INDUSTRIAL ITEMS.

#### MAINE.

The blast was put on at the furnace of Katahdin Iron Works week before last, and the first casting was made the next afternoon of No. 1 iron.

#### NEW HAMPSHIRE.

It is said that the Amoskeag Company, of Manchester, will build a large mill the coming season on the new land made by straight-ening the Merrimac River. This will give employment to a large number of hands.

employment to a large number of hands.

The Eastern Railroad Company have added to their machine shop at Portsmouth, machinery for cutting iron rails without first heating them, and commenced work last week. One of the saws, which was revolving 4500 times a minute, broke with a terrible crash just after it sawed off two rails. Fortunately no one was hurt.

#### VERMONT.

The National Horse Nail Company, Vergennes, have elected the following directors: L. Barnes, Amos Wetherbee, J. H. Neher, J. G. Hindes, C. M. Wellington, W. G. Bixby, D. H. Lewis. The following officers have been chosen: President, Lawrence Barnes; agent and superintendent, J. G. Hindes; treasurer and secretary, D. H.

The St. Albans rolling mill has been started again, under agreement of creditors, to fill an order from a road in Massachusetts, which was received before the attachment. Negotiations for the floating of some mort-gage bonds, to relieve the company from embarrassment and enable them to resume business, are progressing, and with good prospect of success, it is said.

#### MASSACHUSETTS.

At the annual meeting, the Belcher & Taylor Agricultural Tool Company, of Chicopee Falls, re-elected the old board of officers, as follows. Provides to the old board of officers, President and director, E. O. Carter: clerk, James E. Taylor; treasurer George S. Taylor; directors, W. E. Barrett, W. P. McFarland, H. A. Chase, Charles A. Taylor; auditors, H. A. Chase, Charles A. Taylor. A dividend of 8 per cent. was voted and paid.

The agricultural tools sold by the manufacturers of Chicopee Falls during the year ending Dec. 1, amounted to nearly \$200,000 in value. The sales of knitting machines and the gun and pistol trade shows another

\$100,000. The Gold Medal Sewing Machine Company at Orange, are now running by the aid of steam-power. The foreign trade in the hand machines continues active, shipments for one week amounting to 800 machines.

The Boston Belting Company have just ompleted, for a grain elevator in the West, one of their patent stretched smooth-surface belts, of the following dimensions, viz.: 4 feet wide, 5 ply, and 260 feet long. It re-quired for its manufacture 578 yards of duck, weighing 1108 lbs., and 1425 lbs. of rubber, making tetal weight of belt, when completed, 2533 lbs., or a trifle over 11/2

matters have never been quieter or at a lower ebb than at this particular time. The Franconia Iron and Steel Company, of Wareham, started up their mills again, and it is said that the Agawam Mills are

soon to resume operations under new man-

Two water wheels, made by the Holyoke Machine Company, and bought by Italians to drive machinery in Italy, were in a custom house in that country, at last accounts, awaiting the arrival of a paper certifying where the wheels were manufactured.

CONNECTICUT.

The Naugatuck Machine Company employ 20 hands, running full time, on miscellaneous jobbing. The Connecticut Cutlery Company, employing 55 hands and running nine hours a day, and the Union Knife Company, employing 80 hands and running light hours, are filling general orders.

It was the smaller of the two factories of the Seth Thomas Clock Company, at Thomaston, that was burned. The large factory, known as the movement shop, and nearest the Naugatuck River, was repeatedly on CONNECTICUT.

the Naugatuck River, was repeatedly on fire, but was saved.

The Ansonia Brass and Copper Company are setting two boilers with the Jarvis setting.

NEW YORK.
Recently, \$150,000 were paid out in one day to employees of the Troy Iron Works.

The foundry of Bussey, McLeod & Co., of
Troy, has been shut down for the season.

The rolling mill at Cohoes resumed opera-

tions on the 28th ult. NEW JERSEY.
All the employees of the Starrs Iron Works, Camden, whose wages were less than \$100, have been paid in full, and those to whom larger amounts were due have

been paid in part.

The electric light has been introduced im

Atha & Co.'s steel works, Newark.

The estimated amount of pig iron on hand at the furnaces in this State is 15,000 tons. PENNSYLVANIA

The Glen Iron Works, at Allentown, are divertised to be sold by the sheriff. The Warwick Iron Company, of Pottstown, through the president, Isaac Fegely, presented as a Christmas gift, to the manager of their furnace, a handsome gold watch and chain, as a token of their appreciation of his services and abilities. ciation of his services and abilities.

The iron foundry at Royer's Ford has suspended operations. When they will resume sunknown Joanna Furnace, Berks county, Mr. L. H.

Joanna Furnace, Berks county, Mr. L. H. Smith, proprietor, made 30 tons of No. 1 charcoal pig iron in one week recently.

The Philadelphia and Reading Coal and Iron Company, which for some time has been negotiating for a lease of the buildings of the Washington Iron Works, have taken possession of the property, and at once began preparations for the establishment of repair shops. The enterprise will give employment to 250 men.

The late Edward Brooke, of Birdsboro, having made no will, letters of administration have been granted by the County Regis-

having made no will, letters of administration have been granted by the County Register upon the estate to Mrs. Annie M. C. Brooke, widow of deceased. Her sureties are George Brooke and Hon. Hiester Clymer, in the sum of \$500,000. The administratrix gave a power of attorney to George Brooke, to continue business under the firm have of F. & G. Brooke.

name of E. & G. Brooke. hame of E. & G. Brooke.

George Carnell, brick-making machinery,
Philadelphia, reports several contracts for
machinery to be supplied to Fire-brick
manufacturers throughout the State, caused
by an improvement in that branch of trade, d the relining of furnaces that have b

idle for years.

PITTSBURGH AND VICINITY.

An immense locomotive, built in Philadelphia for the Mexican and Southern Pacific Railroad, passed through Pittsburgh a few days ago. The engine weighs 118,000 pounds, has 8 driving wheels, and has a pony (two-wheel) truck. The weight is so great that the Western railroads, over which it must pass, will not permit it to go over bridges, so it will be taken to pieces and carried over in sections. It passed over all the bridges of the Pennsylvania road without being dismantled.

Lewis, Oliver & Phillips' lower mills, Allegheny, have completed repairs, and are on full time. idle for years.

full time.

It is rumored that the Eagle Iron Works, formerly operated by Mullen & Maloney, on the Scuth Side, will soon resume operations. The puddling department of the Sligo Mill, on the South Side, is running double turn.

Zug & Co.'s nail factory is still idle, and no prospect of starting. The puddlers of the old mill, also the bar and guide mills, are working steady, with good prospects.

The Beaver Falls Steel Works, George

Abel, superintendent, are running full orders, and contemplate double time. оню. Messrs. Mitchell, Tranter & Co., proprietors of the Ohio Valley Steel and Iron Works, at Cincinnati, completed repairs to

their machinery in time for them to resume work on the 1st inst., with a fair demand for iron, and a hope that better prices will prevail at an early day.

A boiler plate, weighing 2250 pounds, and

over 7 feet wide, was turned out at the Portsmouth Gaylor Rolling Mill, recently, the largest ever rolled there. KENTUCKY.

Charlotte Furnace resumed blowing on Monday last, and after an additional run of 20 days, blow out for the present season. The new Avery Plow Works, at Louis-ville, have a capacity of 150,000 plows per annum. Only 30 years ago this enterprise had its inception in the small blacksmith shop of B. F. Avery & Sons.

The Weston Iron Boat Building Co., of Carondelet, have at present 150 men at work. Recently the company launched a side-wheel surveying boat for the government, which was 54 feet long, 10 feet beam, 4 feet hold. This is one of four iron boats the company have built in three months, and they are now building a snag boat for the government. It will be 190 feet long, 62 feet breadth of beam and 8 feet deep. The iron in this boat will weigh 500 tons

WISCONSIN.
Henry D Smith has bought the National furnaces, Depere, which were sold at assignee's sale. The purchase includes all the lands, kilns and appurtenances. Mr. Smith has been successfully operating one of the stacks during the past six months, under a

Foot Power Bracket Savs
e now so much in demand that some of them are being sold in almost every town in the United States. Many dealers are doing a profitable Christmas do on such goods at a time of the year when other business is usually dull. The two Saws shown in these cuts are the ones most in demand. We additise them as for sale at the hardware stores, and they will be called for. We make a fair discount to the trade.



The New LESTER SAW is made of Iron, with all the working parts of Steel, and contains ALL KNOWN IMPROVEMENTS to this date. It is handsomely painted red and green with red stripes, and presents a beautiful appearance. Those parts which are not painted are either Polished or Japanned. We warrant the Saw to be just as herein stated, and we know it will give entire satisfaction, being a more expensive machine than those which we formerly sold for \$\prec{\pi\_S}\_S\$. ist. it consists of a SCROLL SAW, with Tilling Table for iniaid work; arms 18 inches in the clear; clamps which will hold saws of any length or width, and face them in four different directions, cutting lumber from 1-16th to 1 inch in thickness; speed, 1700 strokes per minute. 2d A CIRCULAR SAW 2½ inches in diameter, which will cut lumber ½ fenh and less; with an Iron Table 4 by 5 inches. 3d. A BILLING ATTACHMENT with six Stubs' Steel Drills of various sizes for wood or iron work. 4th. An Emery Where, with six Stubs' Steel Drills of various sizes for wood or iron work. 4th. An Emery Where, with six hide and narrow rim. 5th. A TURNING LATHER, with Iron Ways and Rest, Steel Centres and three Best Steel Turning Tools; length of Ways, 15 inches; distance between Contres, 9 inches; swing, 3 inches; length of Silde Rest, 46 inches; unmber of revolutions per minute, 2000. Also, with each Machine, six Saw Blades, a Wrench, Screw Driver, Extra Belt and two sheets of Designs, with a nice box for the small tools and a box

between Contros, 9 inches; swins, 3 inches; length of Side Rest, 4% inches; number of revolutions per minute, 7000. Also, with each Machine, six Saw Blades, a Wrench, Screw Driver, Extra Bell and two sheets of Designs, with a nice box for the small tools and a box for the whole machine. It is taken apart when shipped and packed in a box, but the working parts are all left in place and the frame is put together again by a single bot.

Price for everything above named,

- - \$8.00

The same without the Lathe and Circular Saw, - \$6.00

When desired, we turnish with the Lathe a very nice Drill Chuck for working metal, and a Tail Stock, with Screw Centre, for \$2.00 extra.

ROGERS SAW.

Scroll Sawing and Drilling Attachment. Iron Table, adjustable for Inlaying.

All the working parts of iron and steel; weight, with box, 30 pounds; hight of table above the floor, 32 inches; 12-inch beit wheel; 5-inch baiance wheel; arms 18 inches in the clear; latest improved clamps; round belts; extra drills and wrench. The iron and steel parts are polished or Japanned; the wood is painted dark. It is not as good as our Lester Saw, but is much better than any other cheap machine in the market.

Price, including all the attachments and the box, - \$3.00

MILLERS FALLS CO., 74 Chambers St., New York.



Rogers Saw.

Lester Saw.

Manufacturers of U.S. Standard BOXWOOD and IVORY RULES. Also Exclusive Manufacturers of L. C. STEPHENS' PATENT COMBINATION RULE. Ited in foreign measure to order.

les graduated in foreign measure to order. RIVERTON, CON H. DURRIE & CO., New York Agents, who will supply the trade at factory prices

#### BAILEY WRINGING MACHINE CO.,

No. 99 Chambers Street, New York.





MANUFACTURERS OF

Novelty and Excelsior Clothes Wringers, Defiance Metallic Planes,

Spoke Shaves, Try Squares, etc., Novelty Carpet Sweepers.

MANUFACTURERS' AGENTS FOR

American Meat and Vegetable Choppers, Silver's Stuffers and Presses, Simpson's Quick-Adjusting Parallel Vises,

Novelty and Relief Washing Machines, Domestic Ironing Mangles.





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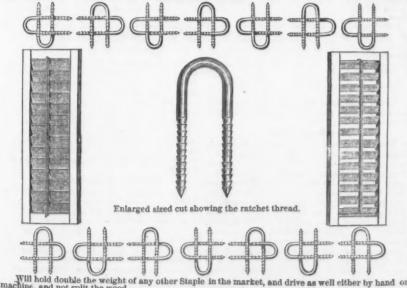
ESTABLISHED 1850.

American and French

With Flat, Round, Oval, Depressed, Screw Fancy Heads, etc.

Brass Hooks for Jewelers' Cases, Zinc and Iron Hinges, Turn Buttons, Thumb Springs, Book Clasps, and Fancy Metal Work of all kinds. OFFICE AND WORKS: Nos. 63 & 65 Elizabeth Street, New York.

Patent Improved Cone Pointed, Ratchet Thread, Steel Wire BLIND STAPLES.



J. LLOYD HAIGH, Sole Manufacturer - 2 81 John Street, New York.

## NATIONAL Horse Nail

### FINISHED

[BRIGHT OR BLUED]



These nails are made of the best brands of NOR-WAY IRON, and are guaranteed to be equal to

NATIONAL HORSE NAIL CO. VERGENNES, VT

HORACE DURRIE & CO., Agents, No. 97 Chambers St., New York

**PUTNAM'S** HOT FORGED & HAMMER POINTED Horse Shoe Nails.



Made from the best of Norway

The only hot forged machine made Horse Shoe
Nail in the world that is not sheared or cut on the
point. Warranted never to split or silver in the
driving, and to hold the shoe longer than any other
Nail. For sale by the hardware and iron trade Made from the best of Norway Iron.

PUTNAM NAIL CO., P. O. Address, Neponset, Mass.

### Steel Horse Shoe Nails,

made from metal prepared in the Martin-Siemen Furnace by our PATENT process, which produces a nail having all the requisites for a

#### PERFECT HORSE SHOE NAIL.

The well-known desirable properties of a perfect nail are, that the FORT should be sharp, the SHANE stiff, to drive without crippling under the hammer, soft enough to clinch readily, while sufficiently tough to avoid all danger from the "drawing the clinch" or breaking the neck under the head. These properties we claim for the

#### "ANVIL HORSE NAILS."

In the process of manufacture the metal is com pressed under the head, which gives the nail great strength where it is required (between the shoe and hoof), and the cold rolling gives it a stiffness attained in no other way, while the quality of the metal used insures a clinch and point un-surpassed by any nail ever offered in the market. Samples and prices sent on application.

ANVIL NAIL CO.,

65, 67 and 69 Washington St., New York.

Established in 1839.

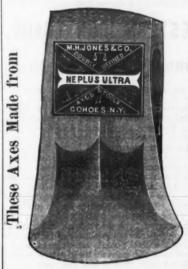
Formerly L. & A. G. Coss.

JUNE 26, 1866. MARCH 23, 1869, REISSUED 1870. NOVEMBER 10, 1863, FEBRUARY 23, 1864, REISSUED JUNE 1, 1869, IMPROVED AUG. 1, 1877.

The back thrust when in use borne by the SHANK instead of the Hand's. None genuine unless stamped "L. COES & CO."

Worcester Mass.

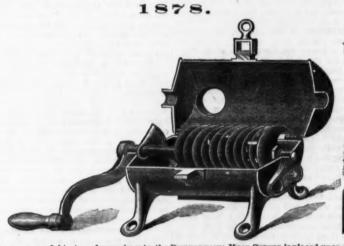
Warehouse, 97 Chambers St., & 81 Reade St., N. Y HORACE DURRIE & CO., Sole Agents.



Yor



PENNSYLVANIA MEAT CUTTER



After many careful tests and experiments, the Pennsylvania Mear Cutter is placed upon the market with the fullest confidence of its superiority. It cuts the meat rapidly and is easily adjusted to cut coarse or fine. The knives are the best quality cast steel, tempered and hardened, easily removed from the shaft for the purpose of grinding, or can be sharpened if necessary by the use of a flat file, without being taken from the shaft. The comb (below the shaft and cutters) is malleable from Throug! this comb the knives pass and the meat is entirely cut. At the price these are placed upon the market they can reach the consumer at a price that must guarantee popularity.

PRICE LIST. . 1, containing 8 Steel Knives.... No. 2, "11"

No. 2, "12"

No. 3, "12"

Nos. 1 and 2 are packed 1-2 dozen in a box; No. 3 packed 1-4 dozen in box.

Discount to the trade, 50 per cent. Orders solicited.

LLOYD, SUPPLEE & WALTON. No. 625 Market Street, PHILADELPHIA.

# The American Machine Co.,



And Other

### HARDWARE SPECIALTIES.

Office and Factory,

1916 to 1924 North Fourth Street, - - - PHILADELPHIA PA.

#### Railroad Construction in 1878.

A tabular statement of the new railroads completed in the year 1878 has been com-piled by the Railroad Gazette. From the piled by the Railroad Gazette. From the figures which we give below it will be seen that the total has been considerably greater not only than the previous year, but than any year since 1873. At the beginning of 1878, according to Poor's Manual, there were 79,208 miles of railroad in the country, so that according to the data given by the Railroad Gazette, there are now 81,896 miles in the United States, or about one mile for \$85 inhabitants: mile for 585 inhabitants:

123%

Total...7,340 3.883 2,025 1,561 2,450 2,281 2,688
It may be said of the extensions of 1878 It may be said of the extensions of 1878, that they were parallel with a great increase of production, and an examination of their situation will show that the largest part of them were just where production has recently increased most rapidly and promises to continue to increase, in the immediate future at least. They are chiefly for local traffic at a size with the same parallel statement of the same parallel same pa to continue to increase, in the immediate future at least They are chiefly for local traffic, 871 miles, or 33 per cent., being narrow gauge. Minnesota leads this year with its mileage of new road, having completed no less than 338 miles, or 13 per cent. of the whole. This, it is believed, is more than in any previous year, and considering the fact that but a few years ago not one of the Minnesota railroads made large enough profits to pay the interest on its bonds, and that several did not earn their working expenses, it is certainly remarkable. Doubtless it is largely, if not chiefly, due to the abundant wheat crop of 1877, which attracted a heavy immigration and made a market for the fertile Minnesota lands, of which great quantities are owned by railroad companies and by the government. Probably all, or nearly all, these Minnesota roads will have a paying traffic in course of time, but not so soon as if the last harvest had turned out well. There had been a large immigration before the harvest, however, which is likely to add largely to the area in cultivation in 1877.

Among the lines built for through traffic, or for connecting old roads together—of which there has been a considerable number.

Among the lines built for through traffic, or for connecting old roads together—of which there has been a considerable number, though most of them are short—may be mentioned the Boston, Hoosac Tunnel and Western, which will give the Erie a favorable connection with Boston and New England; three connections with the New York Central from roads to the supplied it two of Central from roads to the south of it, two of which are coal roads; the Pittsburgh and Lake Erie, which will enable the Atlantic and Great Western and the Lake Shore and Michigan Southern to compete for traffic between Pittsburgh and the West; the St. Vincent extension of the St. Paul and Pacific, with the Canadian extension of it to the capital of Manitoba at Fort Garry, which for capital of Manitoba at Fort Garry, which for the first time fairly opens this great unde-veloped empire to the world; the Kansas City Extension of the Chicago and Alton, which will give this company a road of its own instead of leasing the St. Louis, Kansas City and Northern for 160 miles, as it has done hitherto; the Atchison, Topeka and Santa Fe and the Southern Pacific, which are rapidly coming together to form a new railroad route to the Pacific; and the Utah and Northern, which is on its way to Montana and likely soon to give that territory its first convenient outlet

The prospect for railroad extension in 1879 seems good. Between 50 and 60 of the 140 lines built in 1878 are to be extended further in 1879, and among them are such important lines as the Atchison, Topeka and Santa Fe, the Southern Pacific and the Utah and Northern; and of course new lines will be begun. Much will depend on the character of the next harvest. Should that be favorof the next harvest. Should that be favorable, considerable activity in the construction of branches may be expected, especially in Minnesota, Iowa, Kansas and Nebraska. On the other hand, should it be unfavorable immigration will probably be checked, and the construction of many new roads be put off to a more favorable season.

#### The Distress in Sheffleid.

The Sheffield Independent publishes the following, which is full of startling sugges-

The distress is found to be so great in the town that the Ladies' Committee in connection with the Mayor's Relief Fund, have decided to give employment to 200 women daily at their depot in West street. The women were first employed in parties of 80, but the committee had so many applications for work that, during the present week, they have admitted 100 women daily to the sewing rooms, and yesterday no less than 120 were engaged there in making gar-ments for the poor. Another room has now been provided and fitted up, by Mr. Mark Firth, for the additional number of workers,

fered fearful privation. Members of the committee, in superintending operations in the workroom, have recently been shocked, pained and surprised to see several of the women fainting through lack of food, yet the workers, although in such terrible the workers, although in such terrible straits, preferred to endure their misery uncomplainingly, rather than confess the extremity of their poverty. In some cases the women, becoming so ill that they could not continue their employment, have gone despairingly home, and the ladies seeking them out have found them in the most appalling circumstances, without furniture and fire, and almost without clothing. Only this week one of the workers, who had been unable to attend at the depot in consequence of illness, was visited by a committee lady, who found her in a wretched home, without bed or bedding, and in a condition bordering on starvation. The woman has since been under the care of the Ladies' Committee, who have done many similar acts of kindness to the the care of the Ladies' Committee, who have done many similar acts of kindness to the poor. A large staff of ladies visit the depot daily and take great interest in the work. The committee feel that the necessity for relieving the widely-spread distress is so urgent, that they do not intend taking any holiday except Christmas Day, and have decided to work at the depot during New Year's Day as usual. The decision has been received with great satisfaction by the workwomen, who seem very thankful for the consideration shown them by the ladies.

#### **WESTERN IRON TRADE**

#### Annual Review for 1878.

Office of The Iron Age, 77 Fourth Avenue, PITTSBURGE, Jan, 1, 1879.

The course of the Iron trade in the West for the year 1878, expressed in a single sen-tence, has been a continuation in the decline of prices for the larger part of the year, of prices for the larger part of the year, with a slight improvement at its close; an increased production over 1877; and considerable activity, especially in Steel, in the enlargement of works and the increase of capacity. 1878 marks the lowest point in prices ever known in the Iron trade of the country. The decline which begun in 1872, continued almost uninterruptedly until, in the summer of 1878, the prices of everything entering into the manufacture of Iron in all entering into the manufacture of Iron in all its forms, with the single exception of labor, as well as of the manufactured article itself, as well as of the manufactured article itself, reached a point that it was supposed could never be touched. Lake Superior Ore sold for from \$4 @ \$6.50 \$\eta\$ ton at Cleveland; Coke Smelted Neutral Forge Pig Irons touched \$16, and Red Shorts, \$17.50, while Bessemer Pig Irons sold at \$19; Bar Iron has been sold at \$1.60 \$\eta\$ 100, and Nails as low as \$1.85 \$\eta\$ keg. In the face of these adverse prices, our information is to the effect that there has been an increased output in all kinds of Iron. The output of Lake Superior Ore is, with one exception, that of Superior Ore is, with one exception, that of 1873, the largest ever made. The production of all forms of Iron, with possibly the exception of Nails, will be found to be larger than in 1877. It is no little to the credit of than in 1877. It is no little to the credit of Western Iron manufacturers that they have been able to maintain their position. They have displayed an extraordinary amount of pluck and perseverance, fighting against constant reductions in prices. The years since 1873 have been the most disastrous ever experienced, but in the face of it all the West has kept its position. Had the manufacturers of Iron always shown as much judgment and common sense as they manufacturers of Iron always shown as much judgment and common sense as they have pluck and perseverance, prices would be much more satisfactory to-day. Connellsville Coke Trade.

Taking the year as a whole, the demand for Connellsville Coke, which is now the favorite fuel for blast furnace purposes, has been good. The price in January on cars at Taking the year as a whole, the demand for Connellsville Coke, which is now the favorite fuel for blast furnace purposes, has been good. The price in January on cars at ovens was about \$1 @ \$1.05 \$\mathbb{R}\$ ton of 2000 \$\mathbb{B}\$, or \$4\phi @ 4\psi\_\phi\$ bushel of 40 \$\mathbb{B}\$. The winter of '77-'78 being a very open one, large amounts were loaded on barges for the river trade, so that the shipments for the spring run of 1878 were the largest ever known, aggregating some 5,000,000 bushels, or 100,000 net tons. From July to October, on account of the low state of water in the Ohio and the numerous failures in the Shenango and Mahoning Valleys, the Coke trade was considerably depressed and demoralized. Consumers changed their orders greatly increased production of furnaces using Coke as a mixture, has been ascribed to almost every conceivable thing but the use of Coke The trade East has, all through the year, slowly but steadily increased, and the promise is that it will be much more extensive at the close of 1879 than at its beginning. The Coke trade with than at its beginning. The Coke trade, with the exception of that which is shipped to furnaces by the river, is one in which supply and consumption are but a few days apart. Most of the Coke is in blast furnaces in 72 hours after leaving the ovens and, as very little stock is carried at fur and, as very little stock is carried at lur-naces, the trade is of a necessity quickly advanced or depressed, and this makes it difficult to forecast the future. However, it is fair to say that present appearances point to a steady demand, at fair prices, for 1879.

Ore. By far the greater part of all the Pig Iron smelted in the West with Coke or Bituminous Coal, is made from Lake Superior Ores. It is almost the only Ore used in the Pittsburg and neighboring districts, the Shenan-go and Mahoning Valleys and Wheeling. A very small percentage of native Ores, such as the Springfield, Wampum and Fayette County Ores, are used in local furnaces, and some little is brought from the Cornwall mines and some Virginian mines to fur-

of Pittsburg. In the Bessemer process, Pig Irons from these Ores seem a necessity as a mixture to reduce the percentage of silicon, mixture to reduce the percentage of silicon, and as a result, there is not a Bessemer works in the country that does not use Pig Iron made in whole or part from Lake Superior Ores. This has made the best grades suitable for Bessemer Pig in good demand the past year, and the absorption of these by the Bessemer furnaces has increased the demand for other grades, so that, as we have already stated, the outlook for 1878 has been the largest, with one exception, of any year in the history of the trade. The Marquette Mining Journal, which may be regarded as reflecting the views of the Ore producers, began the season with a warning to consumers that the output for 1878 would be less than 1877. Near the close of the be less than 1877. Near the close of the season it was compelled to acknowledge its mistake, and to confess that, in face of lower mistake, and to confess that, in face of lower prices and considerable stocks in the Cleveland docks at the beginning of the season, the output over 1877 was over 100,000 tons, a larger output than any previous year

except 1873.

From the Marquette Mining Journal we take the following table, giving the total shipments of Lake Superior Iron Ore, by lake and rail, for the season of 1878:

Name of	Gross	Name of	Gross
mine.	tons.	mine.	tons.
Republic	176,221	Clevel. hematite	9,317
Cleveland	143,420	Norway	7,276
Lake Superior	103,534	Bessemer	8,506
Jackson	83,121	Goodrich	7,547
Champion	73,464	Cyclops	6,028
Saginaw	61,237	Keystone	5,401
Michigamme	58,622	Palmer	4,704
Salisbury	52,155	Breen	4,694
Vulcan	38,799	Marquette	4,596
McComber	. 30,180	Mitchell	4,259
Rolling Mill	30,773	National	4,191
Pittsburgh and		N. Y. hematite	4.547
Lake Angeline	28,161	Cambria	3.754
Barnum	26,680	Pendill	3,385
Quinnesec	25,925	Spurr	2,217
Humboldt	23,920	Manganese	2,093
Winthrop	23,740	Steward	1,690
New York	21,903	Howe	1,225
Smith	16,924	Morgan	IO
Emmett	11,523		describe succession
Edwards	10,351	Total	124,001

The following table, from the same source, gives the total Ore shipped out of the lake region, and the product of the local furnaces. The years 1877 and 1878 are exceptions, the figures given being the actual product of the mines:

OUTPUT OF LAKE SUPERIOR ORE AND MAKE OF PIG

			8.
Years.	Iron Ore shipments.	Production of Pig Iron.	Total Ore & Pig Iron.
1874	1,167,379	70,507 86,494	1,237,886
1874 1875 1876 1877	910,840	81,753 61,911	992,593
1877	960,982	29,685 18,644	1,018,520

As stated above, the prices for the season have been \$4 @ \$4.50 for Hematites, and \$6 @ \$6.50 for Magnetics and Speculars. The price of the better grades of the latter, owing to their demand for Bessemer purposes, has been very firm. For the former the market was weak at times, but, on the whole, the price fixed at the beginning of the season was fairly maintained. It is very difficult to forecast the course of the market for the coming year. There is no doubt that the demand for Iron for the Bessemer and open-hearth processes will at least absorb all the Ore suitable for this grade that will be mined, and at least enable the present prices to be maintained. The outlook for the demand at the beginning of the season may be mand at the beginning of the season may be so good as to justify something of an ad-vance, but this is by no means to be calcu-lated upon. The new developments, and the extensive improvements and explora-tions that are being made at some old mines, may result in putting a surplus of Ore on the market, and if it does not lower prices, will hold them where they are.

Pig Iron

moralized. Consumers changed their orders for the smallest margin, and Coke reached the smallest margin, and Coke reached the from this date there was a stiffening of prices and a slight advance, the year closing for the smallest magain, sof \$\( \psi\$ ton. From October the demand has steadily improved, until every oven in the Connellsville region is fired. Prices have recovered. Manufactories are now idly asking \$1.10 to furnaces and \$1.20 to foundries. The increased use of Coke in the feeling so good as in November; it for the year, which we collate below rarely ever is. The outlook for 1879, however, is better than it has been for some and out of Blast Jan. 1, 1876, 1877, 1878.

Out of the smallest magain, with the three grades mentioned sening with the three grades mentioned sening as \$1.20 to \$1.50, \$18 and \$16.50. This is a decline of the furnaces in and out of blast on the feeling so good as in November; it rarely ever is. The outlook for 1879, however, is better than it has been for some and out of Blast Jan. 1, 1876, 1877, 1878.

Out of the year, which we collate below and out of Blast Jan. 1, 1876, 1877, 1878.

Out of the year, which we collate below and out of Blast Jan. 1, 1876, 1877, 1878.

Out of the year. The detime at the beginning of a year. The de-mand for certain grades of Iron is very large, and there is no prospect of any decrease. This is notably true of Pig Irons for Bessemer and open-hearth purposes. The stocks of these Irons are nil, and of other Iron very much reduced below what they were a year ago. Manufactured Iron will be in larger demand than ever before. The Old Rail problem is being solved; the demand for these for rerolling, and for manufacturing into other forms, is so great that they have appreciated in price at least \$4 during the year. The prospect of the ex-tension of our railroad system during 1879 is very good, and Iron Rails will be in better demand, as will Fish Plates, Truck Bolts and Nuts, and Railroad Spikes, all of which increased the demand for Old Rails, and, increased the demand for Old Rails, and, consequently, will leave fewer to come into competition with Pig Iron. Judging from the past five years, the large majority of the roads built will be west of the Alleghenies, which will tend to increase the trade of this section considerably. From all these facts, we judge that Pig Iron must advance during the year.

Price of Coke and Bituminous Irons

at Pittsburgh. We give below a continuation of our table Range of Prices at Pittsburgh of Gray Forge Coke or Bituminous Pig Iron, Smelted in whole or in part from Lake Superior Ores, for each Month from January, 1869, to December, 1878, Compiled from Actual Sales.

April

July

1878.	1877.	1876.	1875.	1874.	1873.	1872.	1871.	1870.	1869.
\$17.50 @ 21.00	\$90.50 @ 22.50	\$21,50 @ 23.00	\$23.00 @ 24.00	\$25.00 @ 32.00	\$38.50 @ 43.00	\$18.75 @ 40.00	\$38.50 @ 31.50		
		,					4-1-30 W 34100 433-00 W 37-50		\$30.50 @ 39.00
17.50 @ 20.00	20,00 @ 22,50	22,00 @ 22,50	23.00 @ 24.00	28.00 @ 32.00	38.50 @ 43.00	39.50 @ 45.00	30.00 @ 32.50	35.00 @ 36.50	38.50 @ 32.00
17.00 @ 19.50	19.50 @ 22.50	21.00 @ 23.00	23.00 @ 26.00	27.00 @ 30.00	38.50 @ 43.00	45.00 @ 50.00	30.00 M 35.00	9	
17.00 m 10.00	18 to 60 25 m				,		0000	34.30 89 30.30	30.30 W 39.00
0	notes @ oftes	21.00 (B 22.00	82.00 @ 25.00	20.00 @ 29.00	38.50 @ 43.00	51.00 @ 55.00	34.00 @ 35.25	32.50 @ 36.00	37.50 @ 39.00
17.00 @ 19.00	18,00 (3) 22,00	21.00 @ 22.50	23.00 @ 25.00	a5,00 @ a8.25	37.50 @ 43.00	55.00 @	33-50 @ 35-00	30.00 @ 33.00	37. co @ 38. co
17.00 @ 19.00	18.00 @ 21.50	31.50 @ 22.50	24.00 @ 25.00	35,00 @ a8,00	35.00 @ 38.00	55.00 @	12.00 1 14.00	2000	
17.00 @ 19.00	18.00 @ 21.50	21.00 @ 22.50	24.00 @ 25.00	35.00 M 38.00	33 00 00 00			0 0000	Street & Special
					Office of Desire	Accord the Design	30,00 (B) 34,00	23.00 ( 31.00	35.00 ₺ 38.00
:	15.00 @ 21.50	21.00 @ 22.00	24.00 @ 25.00	34,00 @ 27.00	32.50 @ 35.00	50.00 @ 55.00	32.50 @ 35.00	29.00 @ 31.50	35.50 @ 37.50
15.50 @ 19.00	17.50 @ 21.00	21.00 @ 22.50	23.00 @ 24.00	25.00 @ 28.00	32.00 @ 35.00	52.00 @ 53.00	33.00 @ 35.00	30.00 @ 31.50	36.00 @ 38.00
er 16,50 @ 19,50	17.50 @ 21.00	21,00 @ 22,00	33.00 @ 24.00	25,00 @ 28,00	28.00 @ 74.00	50.00 M	3000		0
nber if so fa to so	200000000000000000000000000000000000000			,			33.30 00 30.00	24.00 W 32.50	37.50 (39.00
	17.50 @ 21.00	21.00 @ 22.00	33.00 B	24.00 @ 27.00	25.00 @ 30.00	46.00 @ 50.00	36,50 @ 40,00	27.50 @ 31.00	37.50 @ 38.00
10.50 @ 19.50	17.50 @ 21.00	20,50 @ 22,00	31.00 m 24.00	200000000000000000000000000000000000000	200	,			

It is too early to arrive at any definite figures as to stocks in the West. It is a fact, however, that in many cases stocks of Pig Iron that were left at furnaces when they blew out have been cleaned up, and stocks of Iron at active furnaces, which were made some years ago, are being closed out. It is also true that stocks held on speculation or by furnace men in hopes of a rise, ulation or by furnace men in hopes of a rise, have been closed out. To show the reduction in stocks the past four years, we give the following tables of stocks on hand at furnaces, unsold on the 1st day of December, 1874-77. It is needless to say that the figures are from the careful and accurate reports of Mr. James M. Swank, secretary of the American Luca and Stock Association. the American Iron and Steel Association

STOCKS OF PIG IRON UNSOLD DEC. 31, 1874, 1875, 1876, Locality. 1877, NET TONS. 1875. 1874. 61,340 63,962 11,295 2,000 61,476 82,012 10,614 991 .115,471 . 49,179 . 8,080 Kentucky. Tennessee......
Michigan and Indiana...
Illinois......
Wisconsin.... 2,781 7,181 5,816 1,639 8,362 11,500

Total.....203 036 161,595 167,817 156,818 This is but a little over 10 per cent of the annual make, and can hardly be regarded as more than an average stock between the producer and consumer.

#### Condition of the Coke and Bitumin-

We have received but partial returns of the furnaces in and out of blast on the first

		In B	last.		Ou	t of	Blas	t.
Locality.	¹76.	177-	<b>'78.</b>	'79.	76.	77-	78.	'79
Shenango Val.	12	XX	13	8	20	20	19	2:
Pittsburgh and vicinity	6	6	7	8	. 5	5	5	4
Allegheny Val. Juniata and		4	4	2		0	0	
Conemaugh.	1 15	10	13	13	30	8	8	
Yough. Valley.	1	3	28	3	)	2	3	- 1
West Virginia.	3	x	2	3	3	5	4	3
Mahoning Val.	19	IO	8	7	10	8.8	13	X 3
Hanging Rock	8	4	6	4	7	RE	EO	13
Various Ohio	10	16	21	14	7	13	15	20
Missouri	2	2	0	2	6	6	8	EC
Total	77	69	75	64	78	86	90	95

In our next issue we shall give our usual quarterly table, showing the condition of the furnaces Jan. 1, 1879.

Merchant Iron.

The year opened with a hopeful feeling in manufactured Iron, caused by what prom ised to be a successful effort for the reduction of production. Near the close of January, one of the largest meetings of Merchant Irou manufacturers ever held in the West assembled at Pittsburgh, and the result of this conference was felt for some weeks. But all hopes were doomed to disappoint-ment. The Tariff agitation in Congress ment. The Tariff agitation in Congress made the future uncertain, and the very mild weather and the terrible state of the Western roads for a number of weeks in the conjugation of the Firth, for the additional number of workers, so that at the commencement of the new year at least 200 women will be able to work at the depot. The ladies, who are carrying on this self-denying labor, are unceasing in their efforts to alleviate the condition.

We give below a continuation of our table, showing the range of prices at Pittsburgh for an unmber of workers, showing the range of prices at Pittsburgh for Gray Forge Bituminous Irons for each mumber of weeks in showing the range of prices at Pittsburgh for Gray Forge Bituminous Irons for each mumber of weeks in the spring three trade back and utterly demoralized the market. The advantage of the workwork at the depot. The ladies, who are carrying on this self-denying labor, are unceasing the prices at Pittsburgh for Gray Forge Bituminous Irons for each mumber of weeks in the street of Old Rails and Car Western roads for a number of weeks in the spring three trade back and utterly demoralized the market. The advantage of the workwork at the depot. The ladies, who are carried the range of prices at Pittsburgh for Gray Forge Bituminous Irons for each mumber of weeks in the street in blast furnaces; under that the depot weeks in the street and the terrible state of the western roads for a number of weeks in the street and the terrible state of the developt of Scray, all receipts of

tion and good demand, but prices always unsatisfactory. The nominal card rate has been \$2 the entire year, but Iron has sold as low as \$1.60. A fair average for Bars for the year would be \$1.70 to \$1.75.

For the coming year an increased demand seems probable, and if the views of

the oldest and most experienced Iron mas-ters are of value, there will be more Iron made and sold in the West in 1879 than any year in its history. There is no question but Iron must advance, or there is one out-

come—bankruptcy.
One of the largest manufacturers of Iron in the United States, who is at the head of two of the largest works in the West, a largo stockholder in Lake Superior ore mines and in several blast furnaces, and who knows all about the business practically, says that Bar Iron cannot be made for less than 2½ cents % B., and give a living profit to all engaged in or dependent on its manufacture, as the mill hands, the on its manufacture, as the mill hands, the ore men, the fuel men and others. If prices of ore, pig and fuel, were to remain at their present low and unprofitable point, Bar Iron could be made at 2 cents, with a very slight margin of profit; but of course it is neither desirable nor possible to keep any business down to a starvation point.

Nails.

The last few months of 1877 were times of the most utter demoralization in the Nail trade. The Western Nail Association had relieved its members from any obligation to maintain prices, and they had gradually fallen, until some orders were sold as low as \$1.98, cash, the lowest price ever reached in this country, though the ruling rates on car this country, though the ruling rates on car loads were \$2.15, 60 days. At its December meeting, the association advanced its price to \$2.35, and agreed to run their mills but half time for two months. The year opened with this agreement in force. Orders were coming in slowly, but the price was maintained, and as the reports to the association showed that the orders for delivery at the date of the meeting were not 20,000 kegs, the association was strengthened to advance Nails to \$2.50 rates at its January meeting. Nails to \$2.50 rates at its January meeting, and to agree to a still further stoppage. The East met the movement by agreeing to run but half time in January and February, and in February the Western Association agreed to a continuation of the reduction. This was continued in March and April, but in to a continuation of the reduction. This was continued in March and April, but in May the sluice gates were opened, and Nails went on a voyage to see if there was any bottom to prices. They found it very soon, and it was \$1.85 per keg for Iod. Though many mills refused to sell at this price, quoting nothing less than \$2, it is a fact that thousands of kegs have been sold at these rates, a price at which it is utterly impossible that Nails can be made. One of the oldest manufactnrers at Wheeling states that Nails cannot be made at less than \$2.40 "all round." This, on the basis of an average of 35¢ for extras, would make \$2.05 for Iod. These figures are from a mill where no interest is paid and the general expenses are very light. The outlook for the coming year is full of doubt. The attempt to control production by pooling product has failed. This failure will give merchants but little confidence in manufactures, and this, with the existence of certain contracts for the year, will have a constantly depressing effect upon the market. It will only be a most extraordinary demand that will keep Nails at present prices.

Steel.

The year opened with a steady market and fair prices. During its course there has been a good demand for fine Steels, and an increased demand for common grades. Prices of both have been but slightly reduced, and at the present time there can be but little change. The demand for the fine Irons which enter into the production of the best grades has been good enough to maintain prices, and with no important reductions in wages there is but little possibility of any change in prices. The aggregate capacity change in prices. The aggregate capacity for production remains about the same. The increase at some points being met by failures or stoppages at others. There is a growing demand for Common Steel, made from Bessemer or open-hearth billets, and the supplying of these to the Crucible Steel works ha become quite an important branch of business. The prospects for the coming year are good. The output will fully equal the last; he con there will be little or no change in prices, and the importation will continue to decrease.

#### Review of the Coal and Iron Industries of Pittsburgh.

The reports in the previous part of this review will all apply to the industries of Pittsburgh, and can be read in that view. Pittsburgh, and can be read that There are some special features, however, mainly relating to the volume of business, that are worthy of special mention. Most that are worthy of special mention. Most of the tables given below are from the Pittsburgh Commercial. Some are compiled from the reports of Mr. Jas. M. Swank, secretary of the American Iron and Steel Association, and others are compiled from original data by our Associate Editor at Pittsburgh, who is secretary of the Western Iron and the Western Nail Associations.

PRODUCTION FOR 1878.

The production of Iron in the Pittsburgh district will be larger for 1878, with the possible exception of Nails, than ever before. Though several of the Pittsburgh mills have been idle the whole year, the output of the others has been increased to meet the deficiency. The blast furnaces have been run more steadily than for the past few years, and the completion and blowing-in of Lucy No. 2, and the increasing output of the others, will add materially to the production

RECEIPTS OF IRON AND ORE.

The showing of receipts of Pig Iron Blooms and Ore for 1878 is decidedly favor-able, showing a considerable increase over 1877, and are only excelled in 1873 and

The Iron Age Directory	y
and Index to Advertisements.	
PAG	- 1
Agricultural Implements. Hubbard H. N., 323 E. 22d. N. Y	.20
Air Compressors. Clayton, James 11 Water, Brooklyn, N. Y Alarm Money Drawers.	. 3
Alarm Money Drawers. Tucker & Dorsey, Indianapolis, Ind	.32
Anti-Friction Metals.  Du Plaine & Co., Philadelphia	.38
Anti-Incrustator. S. B. Briscoe & Co., Pottsville, Pa	38
Anvils, Manufacturers of. Fisher & Norris, Trenton, N. J Richardson Mfg. Co., Worcester, Mass	.29
Augers, Bits, etc., Manufacturers of. Clark Wm. A., Westville, Conn	.20
Axes, Edge Teols, &c., Manufacturers of. D. R. Barton Tool Co., Rochester, N. Y.  Jones M. H. & Co., Cohoes, N. Y.	. 7
Jones M. H. & Co., Cohoes, N. Y	.21
Brown D. Arthur & Co., Fisherville, N. H	.10
Jones M. H. & Co., Conces, N. L. Axles, Springs, &cc., Manufacturers of. Brown D. Arthur & Co., Fisherville, N. H. Cook R. & Sons, Winsted, Conn. Hotohkias Guy C., Field & Co., Brooklyn, E. D. Sheldon & Co., Auburn, N. Y. Wilson, Walker & Co., Pittsburgh, Pa.	. 5
Barb Wire. Thorn Wire Hedge Co., 34 Canal, Chicago	
Barn Door Hangers.  Moore S. H&E, Y. Chicago, III.  Y. Chicago, III.  Newcock Standbers, N. Y.  Scott Geo. M., Chicago, III.	-35
Newcomb Bros., 98 Chambers, N Y Scott Geo. M., Chicago, Ill	.38
Dowin Pros. Mer. Co. Easthampton, Conn.	-28
Belting, Leather, Makers of. Alexander Bros., 412 N. 3d, Philadelphia Forepaugh Wm. F., Jr., & Bros., Philadelphia	.33
forepaugh with F., 51., a Bloom, a Makers of. Lindeman O. & Co., 254 Pearl, N. Y Maxhelmer John, 247 and 249 Pearl, N. Y	. 3
Maxhelmer John, 247 and 249 Pearl, N. Y	- 3
Millers Falls Mfg. Co., 74 Chambers, N. Y	.31
Haigh J. Lloyd, 81 John, N. Y	.31
Blocks, Tackle, Makers of. Burr & Co., 31 Peck Slip, N. Y. McMillan Wm. H. & Bro., 113 South, N. Y. Penfield Block Works, Lockport, N. Y. Providence Tool Co Providence, B. I. Welr John, 7 and 9 Bedford, N. Y.	36
Providence Tool Co Providence, R. I	-34
Bolt Cutters. Howard fron Works. Buffalo, N. Y. stockwell Screw and Machine Co., Cleveland, O Wiley & Russell, Greenfield, Mass.	.36
Wiley & Russell, Greenfield, Mass	.36
Eagle Bolt Works, Philadelphia	.13
Brass Butts, Makers of.	
Tiebout W. & J., 290 Pearl, N. Y.  Brass, Manufacturers of.	.10
Tiebout W. & J., 200 Pearl, N. Y. Bruss, Manufacturers of. Ansonia Brass and Copper Co., 19 Cliff, N. Y. Bridgeport Brass Co., Bridgeport. Conn. Brass Goods Mfg. Co., 28 Pearl, N. Y. Davol John & Sons, too John, N. Y. Holmes, Booth & Haydens, 49 Chambers, N. Y. Manhattan Brass Co., 38 Reade, N. Y. Plume & Atwood Mfg. Co., 60 Chambers, N. Y. Waterbury Brass Co., 206 Broadway, N. Y. Waterbury Brass Co., 206 Broadway, N. Y.	. 33
Davol John & Sons, 100 John, N. Y Holmes, Booth & Haydens, 49 Chambers, N. Y	. 2
Mannattan Brass Co., 63 Ready N. Plume & Atwood Mfg. Co., 80 Chambers, N. Y Scovill Mfg. Co., 421 Broome, N. Y.	. 2
Waterbury Brass Co., 296 Broadway, N. Y Brass Founders. Reeves Paul S., Philadelphia,	. 2
Reeves Paul S., Philadelphia,	.38
Stanyan Co., 75 High, Boston, Mass	
Butcher and Shoe Knives, Manufacturers of Wilson John, Sheffield, England	.35
Sutts and Hinges.	.gs
Butts and Hinges, American Solral Spring Butt Co., 82 Beekman, N. Y Sabin Mfg, Co., Montpelier, Vt. Stanley Works, New Britain, Conn. Union Mfg, Co., 96 Chambers, N. Y.	.24
Calipers. Victor Sewing Machine Co., Middletown, Conn	. 7
arriage Bolts, Makers of.	
Townsend, when a rinously ramaciphin  arriage Hardware, Makers of.  Hayden & Smith, Auburn, N. Y.  Pim Richard P., Wilmington, Del.  Smith H. D. & Co., Plantsville, Conn.  Striffler C., 690 & 692 Ninth ave., N. Y.  Wilcox & Howe, Birmingham, Conn.	.12
Smith H. D. & Co., Plantsville, Conn Striffer C., 630 & 632 Ninth ave., N. Y	.12
Wilcox & Howe, Birmingham, Conn	.31
Rome Trestle Co. (Limited), Rome, N. Y	.28
Car Axles. Roberts A. & P. & Co., 265 S. 4th, Philadelphia Car Pusher (Giant).	. 4
Oar Pusher (Giant). Penfield Block Works, Lockport, N. Y	
Phoenix Caster Co., Indianapolis, Ind	.32
Caulking Irons, Carver John, 288 Monroe, N. Y. Chisels, Manufacturers of, Buck Bros., Milibury, Mass.	. 6
Foot James D. 40 Broadway, N. Y.	.24
Diocks, Springs, &c. Cary & Moen, 234 W. 29th, N. Y Dunbar Bros., Bristol, Conn	. 3
Brower J. I. & Son, 286 Greenwich, N. Y	.34
Coal, Miners of. Pardee, A. & Co., 111 Broadway, N. Y. Tennessee Coal & Rallroad Co., Tracey city, Tenn. The Hoboken Coal Co., Jersey City, N. J.	. 6
Tennessee Coal & Railroad Co., Tracey city, Tenn. The Hoboken Coal Co., Jersey City, N. J	. 6
Coal Hods. Esterbrook, Wm. Philadelphia, Pa Pierce Geo. N. & Co., Buffalo, N. Y	.29
Coal Vases. Sidney Shepard & Co., Buffalo, N. Y	.27
Coffee and Spice Mills.  Lane Brothers, Millbrook, N. Y  Enterprise Mfg. Co., Philadelphia, Pa	.13
Enterprise Mfg. Co., Philadelphia, Pa Compasses and Dividers, Manufacturers of. Bemiss & Cali Hardw. & Tool Co., Springfield, Mass	.23
Coopers' Tools, &c., Manufacturers of. D. R. Barton Tool Co., Rochester, N. Y	8.12
Copper. The New Haven Copper Co., 255 Pearl, N. Y	. 7
Corn Huskers. Chambers, Bering & Quinlan, Decatur, Ill	. 28
Uorn Shellers. Rumsey & Co., Seneca Falls, N. Y The Gould Mig. Co., Seneca Falls, N. Y Corrugated Iren. Moseley Iron Bridge and Roof Co., 5 Dey, N. Y	. 7
The Gould Mfg. Co., Seneca Falls, N. Y	*
Urucibles, Manufacturers of. Wile Siedel & Co., 700 Market, Phila.	.93
Smith & Sayre Mfg. Co., 21 Cortlandt st., N. Y	.36
Curry Combs, Manufacturers of. Lawrence Curry Comb Co., 382 2d av., N. Y	.29
Cutlery, Importers of. Boker Hermann & Co., 101 Duane, N. Y	.31
Untlery, Importers of. Boker Hermann & Co., for Duane, N. Y. Clatworthy F. & W., & Chambers, N. Y. Fisher Jos, S., 411 Commerce, Phila. Friedmann & Lautorjung, 14 Warren, N. Y.	.10
Cutlery, Manufacturers of.	
Goodell Company, Antrim, N. H. John Russell Cutlery Co., 90 Chambers, N. Y.	. 38
Marx Bros., 430 Broadway, N. Y. Meriden Cutlery Co., 49 Chambers, N. Y.	.10
Syracuse Cutlery Co., 89 Chambers, N. Y	.10
Burkinshaw Aaron. Peppered Mass. Goodell Company. Antrim, N. H. John Russell Cutlery Co., 90 Chambers, N. Y. Meriden Cutlery Co., 40 Chambers, N. Y. Meriden Cutlery Co., 40 Chambers, N. Y. Saugatuck Cutlery Co., 18 Syracuse, N. Y. The Frany Cutlery Co., Bridgeport, Conn. The Lamson & Goodnow Mg. Co., 86 Chambers, N. Y. Differential Putley Blocks.	.10
Vale Look Mfg. Co. 12 Chambers, N. V.	. 4
Dinner Pail & Lanterns. Halght, Jos. Portchester, N. Y Discount Tables.	. 7
	16
Discount Tables. Jennings S. H., Deep River, Conn Deor and Grate Springs. Dunne P. R., 182 Fulton, N. Y. Van Wagoner & Williams, 82 Beekman, N. Y.	

The Iron Age Directory	Todd Joseph C. to Barclay, N. Y	Roane Iron Co., Chattanooga, Tenn
and Index to Advertisements.	Barlines. Steam, Makers of. Engines. Steam, Makers of. Ervien Chas. W. & Co., Kensington, Phila. Fitchburg Steam Engine Co., Fitchburg Mass. Harris Wm. A., Providence, R. I. Lovegrove & Co., Philadelphia, Pa. Payne B.W. & Sons, Corning, N. Y. hapley & Wells, Binghamton, N. Y. Wetherill Robt. & Co., Chester, Pa.,	Rowland Wm. & Harvey, Philadelphia
——	Payne B.W. & Sons, Corning, N. Y	Vulcan Iron and Nail Works, Chattanooga, Tenn U. S. Iron and Tin Plate Co., Pitsburgh, Pa Wason Car and Foundry Co., Chattanooga, Tenn
Agricultural Implements. Hubbard H. N., 323 E. 22d. N. Y	Jennings S. H., Deep River, Conn	Zug & Co., Pittsburgh, Pa  Iron, Planished Sheet, Manufacturers of. Wood W. D. Co. Pittsburgh, Pa
Air Compressors. Clayton, James 11 Water, Brooklyn, N. Y 3	Fan Blowers. Landis Ezra F., Lancaster, Pa. Faucets, Brass, Makers of, McNab & Harlin Mfg. Co., 56 John, N. Y.	Lanterns. Manufacturers of. Diets R. E. (Tubular) 54 and 56 Fulton, N. Y
Alarm Money Drawers. Tucker & Dorsey, Indianapolis, Ind	Penfield Block Works, Lockport, N. V.	Howard & Morse, 45 Fulton, N. Y
Anti-Friction Metals, Du Plaine & Co., Philadelphia	Faucets, Self-Measuring, Makers of, Enterprise Mfg. Co., of Pa., Phila. and N. Y. Lane Bros., Millbrook, N. Y. Fence (Hurdle.)	Lathes.
S. B. Briscoe & Co., Pottsville, Pa	Fence (Hurdle). Wickeranam J. B., 913 Cherry, Philadelphia Files, Mporters of. Carr J. & Riley, 83 John, N. Y. Fisher Joseph S., 41 Commerce, Phila Moss F. W., 80 John, N. Y.	Chio Mfg. Co., Cleveland, O
Richardson Mfg. Co., Worcester, Mass	Fisher Joseph S., 411 Commerce, Phila	Disston Henry & Sons, Philadelphia
Conn. Valley Hdw. Co., 98 Chambers, N Y	Biles, Manufacturers of. Auburn File Works, 30 Chambers, N. Y. Auburn File Works, 30 Chambers, N. Y. Barnett G. & H., 44 and 43 Richmond, Phila. Chalmers & Murray, 76 Reade, N. Y. Disston Henry & Sons, Phila. Draper C. T. & Co., Sing Sing, N. Y. Everhart James M., Scranton, Pa. Excelsior File Works, Rochester, N. Y. Heller & Bros., Newark, N. J., N. Wester, N. Y. McCaffrey & Bro., 172 and 174 N. 4th, Phila. New American File Co., Pavincket, R. I. Nicholson File Co., Providence, R. I. Paul Chas, B., Williamsburgh, N. Y. Spencer I. R. & Son Sheffield England. Fire Brick, Makers of.	Bohannan Wilson, Broadway and Kossuth, Brook- lyn, E. D. 38 Conestoga Lock Works, Lancaster, Pa. 39 D. K. Miller Lock Co., Philadelphia, Pa. 38 Hoyt Fred J., 733 Broadway, N. Y. 38 Romer & Co., Newark, N. 38 Smith & Egge Mg. Co., Bridgeport, Conn. 39 Yale Lock Mg. Co., 43 Chambers, N. Y. 28
Jones M. H. & Co., Cohoes, N. Y	Disston Henry & Sons, Phila Draper C. T. & Co., Sing Sing, N. Y Everhart James M., Scranton, Pa.	25 Romer & Co., Newark, N. J. Smith & Egge Mfg. Co., Bridgeport, Conn
Jones M. H. & Co., Colours, N. T.  A xies, Springs, &c., Manufacturers of, Brown D. Arthur & Co., Fisherville, N. H.  Gook R. & Sons, Winsted, Conn.  10. Hotchkiss Guy C., Field & Co., Brooklyn, E. D.  33 Sheldon & Co., Auburn, N. Y.  Wilson, Walker & Co., Pittsburgh, Pa.  5	Heller & Bros., Newark, N. J.  Johnson & Bro., 1 Commercial, Newark, N. J.  McCaffrey & Bro., 22 and 1224 N 4th Phila	Machinery, Makers of. Bliss & Williams, 167 Plymouth, Brooklyn
Barb Wire. Thorn Wire Hedge Co., 34 Canal, Chicago	New American File Co., Pawtucket, R. I. Nicholson File Co., Providence, R. I. Paul Chas. B., Williamsburgh, N. Y.	Bilss & Williams, 167 Plymouth, Brooklyn.  Flanders L. B., 162 Hamilton, Phila.  Garvin E. E. & Co., 130 Center, N. Y.  Mohawk & Hudson Mig. Co., Waterford, N. Y.  Niles Tool Works, Hamilton, O.  Philadelphia Hydraulic Works, Philadelphia Pa.  Pittsburgh, Pa.  Pittsburgh, Pa.  The Sullard Machine Co., 14 Dev, N. Y.  The Bullard Machine Co., 14 Dev, N. Y.  Wetherill Robert & Co., Choster, Pa.  Wetherly Robert & Co., Choster, Pa.  Mechany (Barners's East, Pawer.)
Barn Door Hangers.         Moore S. H. & E. Y., Chicago, III.         35           Bellows.         Manufacturers of.         35           Newcomb Bros., 96 Chambers, N Y.         38           Scott Geo.         M., Chicago, III.         39	Spencer I. R. & Son Sheffield England	Printed print Rydraulic works, Frina delphia Fa3 Pittsburgh Mg. Co., Pittsburgh, Pa
Newcomb Bros., 98 Chambers, N Y	Spencer I. R. & Son Sheffield England.  Fire Brick, Makers of. Borgner & O'Brien, Philadelphia, Pa. Brookiyn Clay Retort and Fire Brick Works, Van Dyke St., Brooklyn, N. Y. Gardner Brothers, Pittsburgh. Hall A. & Sons, Perth Amboy, N. J. Hall & Sons, Burfaio, N. Y. Maurer Henry, 418 East 3d, N. Y. Kreischer B. & Sons, 96 Goerek, N. Y. Ostrander James & Son, Troy, N. Y. Valentine M. D. & Bro, Woodbridge, N. J. Watson John B., Perth Amboy, N. J. Watson John B., Perth Amboy, N. J.	The Bullard Machine Co., 14 Dev. N. Y. The Stiles & Paker Press Co., Middletown, Ct
Bevin Bros. Mfg. Co., Easthampton, Conn	Hall & Sons, Buffalo, N. Y. Maurer Henry, 418 East 23d, N. Y. Kreischer B. & Sons, 58 Goerck, N. Y.	Machinery (Barnes's Foot Power.)   Little Chas. E., 59 Fulton, N. Y   Machine Screws, Makers of.   Lyon & Fellows Mfg. Co., Williamsburg, N. Y
Forepaugh Wm. F., Jr., & Bros., Philadelphia33 Bird Cages, Makers of. Lindeman O. & Co., 254 Pearl, N. Y	Newton & Co., Albany, N. Y Ostrander James & Son, Troy, N. Y Valentine M. D. & Bro., Woodbridge, N. J	Lyon & Fellows Mfg. Co., Williamsburg, N. Y 3  Machinists' Tools, Makers of.  Blaisdell P. & Co., Worcester, Mass
Maxhelmer John, 247 and 249 Pearl, N. Y	Raeder Adamson & Co. 220 Market Phile	Hammer & Co., Branford, Conn
Blind Staples. John N. V.	Shepard Hardware Co., Buffalo, N. Y.	Mallets. N. Y. Handle and Mallet Works, 456 E. Houston
Haign 3, Lioyd, 6, 80 Miles of. Blocks, Tackle, Makers of. Burr & Co., 31 Peck Slip, N. Y.  McMillan Wm. H. & Bro., 113 South, N. Y.  Penfield Block Works, Lockport, N. Y.  35 Providence Tool Co Providence, R. I.  34 Weir John, 7 and 9 Bedford, N. Y.	Forges, Portable, &c. Keystone Portable Forge Co., Philadelphia, Pa Empire Portable Forge Co., Cohoes, N. Y	Mechanics' Tools.  Jennings C. E. & Co., 98 Chambers, N. Y
Providence Tool Co Providence, R. I	Fossiliferous Ores. Brown T. J., Rockwood, Tenn	6 Ment Chapping Machinery.
Bolt Cutters. Howard Iron Works. Buffalo, N. Y	Foundry Facings. Paxson J. W. & Co., 514 Beach, Phila. Whitehead Bros., 517 W. 15th, N. Y. Friction Clutch.	
Bolts (Screw.)	Friction Clutch. Smith James & Co. 137 Market Philadelphia Furnaces, Makers of. Richmond & Potts, 119 S. Fourth, Phila., Pa	Dickerson, Van Dusen & Co., 20 and 31 Cliff. N. Y Graves O. W., Cor. Cliff and Beekman, N. Y Phelps, Dodge & Co., Cliff, bet. John & Fulton, N. Y. Purves A. & Son, cor. South and Penn, Phila. Read, D. W. R. & Co., 2046, Walnut, Phila. Quincy J. W., 98 William, N. Y. Sellew R. & Co., St. Louis, Mo Starr John, Halifax, Nova Scotia.
Boot and Shoe Heel Stiffeners. Lyon N., Albany, N. Y.  Brass Butts, Makers of. Tiebout W. & J., 290 Pearl, N. Y.	Mathieu Jean A. Room 2 rs South ath Phile	Seliew R. &. Co., St. Louis, Mo
Tiebout W. & J., 200 Pearl, N. Y	Furniture Springs. Carey & Moen, 234 W. 29th, N. Y. Haigh Loyd J., 81 John, N. Y.	Ironelad Manufacturing Co., Brooklyn, N. Y3
Bridgeport Brass Co., Bridgeport Conn. 2 Brass Goods Mfg. Co., 28 Pearl, N. Y	Gaivanized Iron. Lefferts Marshall, Jr., 90 Beekman, N. Y	
Brass, Manufacturers of.  Ansonia Brass and Copper Co., 19 Cliff, N. Y. 2 Bridgeport Brass Co., Bridgeport. Conn. 2 Brass Goods Mg. Co., 28, Pearl, N. Y. 3 Davol John & Sons, 100 John, N. Y. 4 Holmes, Booth & Haydens, 49 Chambers, N. Y. 2 Manhattan Brass Co., 83 Reade, N. Y. 2 Plume & Atwood Mg. Co., 80 Chambers, N. Y. 2 Scoutil Mg. Co., 42 Heroome, N. Y. 2 Scoutil Mg. Co., 42 Heroome, N. Y. 2	Junson Junius & Son, Nocaester, N. Y.  Grindstones. Wood H. S. & Co., 28 West, N. Y. Wood Walter R., 289 and 285 Front, N. Y. Workbington & Sons, North Amherst, O.	37 Mill Gearing. Poole & Hunt, Baltimore.
Plume & Alwood alig. Co., 50 Chambers, S. 1 2 Scovill Mg. Co., 421 Broome, N. Y. 2 Waterbury Brass Co., 296 Broadway, N. Y. 2 Brass Founders. 8 Reevos Paul S., Philadelphia, 35	Worthington & Sons, North Amherst, O.	Minera' Candles, Makers of. James Boyd's Sons, 10 and 12 Franklin, N. Y
Bread Mixer and Kneader. Stanyan Co., 75 High, Boston, Mass	Gunpowder, Makers of. Kneeland F. L. (Dupont) 70 Wali, N. V.	Mineral Wool.  Elbers Alexander D., 261/2 Broadway, N. Y
Bridge Builders. Moseley Iron Bridge and Roof Co., 5 Dey, N. Y	Hundles, Makers of. Hundley & Hanks, 70 Reade, N. Y.	Burrows Wm., 99 Fulton, N. Y
Wilson John, Sheffield, England	Hondwore Commission Moncheste	Mouse Traps.
Butts and Hinges, American Spiral Spring Butt Co., 82 Beekman, N. Y. 38 Sabin Mfg. Co., Montpeller, Vt Stanley Works, New Britaln, Conn. 24 Union Mfg. Co., 96 Chambers, N. Y. 27	Walbridge G. B. & Co., 83 Reade, N. Y	34 Dietz R. E., 54 and 56 Fulton, N. Y.  Oliver E., 106 and 108 Beekman N. Y.  Ripley Mfg. Co., Unionville, Conn.
Calipers. Victor Sewing Machine Co., Middletown, Conn34 Carriage Bolts, <i>Makers of</i> . Townsend, Wilson & Hubbard, Philadelphia12	Shepard Sidney & Co. Buffalo N V	Schoenberger & Co., Pittsburgh, Pa
Townsend, Wilson & Hubbard, Philadelphia	McCoy & Co., 134 and 130 Duane, N. Y.	Nail Machinery, Coyne & Hatry, Pittsburgh, Pa Pittsburgh Mg. Co., Pittsburgh, Pa
Carriage Hardware, Makers of.	Hardware Manufacturers, American Spiral Spring Butt Co., 82 Beekman, N.Y. Coulter, Flagler & Co., 87 Chambers, N. Y.	Nail Puller. Smith M. M., Kirksville, Mo Nickel Pinters. Hartman John, 37% N. Seventh, Philadelphia
Carriage Springs. Rome Trestle Co. (Limited), Rome, N. Y	Cowles Hardware Co., Unionville, Conn. Enterprise Mg. Co., Phila. Lloyd, Supplee & Walton, c25 Market St., Phila., Pa	Nickel Platers' Supplies. Condit, Hanson & Van Winkle, Newark, N. J Zucker & Levett, 639 and 641 W. 518t, N. Y
Car Axles. Roberts A. & P. & Co., 265 S. 4th, Philadelphia	Miller's Falls Mfg. Co., 74 Chambers, N. Y. Payson & Co., Chicago, Il. R. Bliss Mfg. Co., Paytucket, R. I.	Norway Shapes, Rollers of. Rowland Wm. & Harvey, Frankford, Philadelphia.
Car Pusher (Gisnt). Penfield Block Works, Lockport, N. Y	Windmuller Louis & Roeiker, 20 Reade, N. Y.  Hardware Manufacturerrs, American Spiral Spring Butt Co., 82 Beekman, N. Y. Cowles Hardware Co., by Chambers, N. Y. Cowles Hardware Co. Unionville, Conn. Enterprise Mg. Co., 18 Beekman, N. Y. Maleby, Currise Co., 18 Reade, N. Y. Miller's Falls Mg. Co., 24 Reade, N. Y. Miller's Falls Mg. Co., 18 Reade, N. Y. Payson & Co., Chicago, H. R. Bilas Mg. Co., Pawtucket, R. L. Russell & Erwin Mg. Co., New York Shepard Hardware Co., Buralo, N. Y. Stanley Works, New Britain, Conn. Union Mg. Co., 20 Chambers, N. Y. Van Wagoner & Williams, 82 Beekman, N. Y. Hardware Special Rics.	Note Broker. Gallaudet P. W., 3 and 5 Wall, N. Y.  Nut Tapping Machines. Howard Iron Works, Buffalo, N. Y.
Phoenix Caster Co., Indianapolis, Ind	Union Mrg. Co., 99 Chambers, N. Y Van Wagoner & Wiiliams, 82 Beekman, N. Y Hardware Specialties.	Nuts, Boits, etc., Makers of. Haskell W. H. & Co., Pawtucket, R. I. Towle Oliver & Phillips, Bitzsburgeh, Ba
Chisels, Manufacturers of. Buck Bros., Milibury, Mass	Van Wagoner & Williams, 52 Beekman, N. Y. Hardware Specifities.  Many Francis 143 Chambers, N. Y. Shepard Sidney & Co., Buffalo, N. Y. Spencer & Underhill, 94 Chambers, N. Y. Hardware (Wagon).	Nutw. Bolls, etc., Makers of. Haskell W. H. & Co., Pawtucket, R. I. Lewis, Oliver & Phillips, Pitteburgh, Pa. russell, Birdaall & Ward, Port Chester, N. Y. Shelkon Co., Birmingham, Conn. Standard Nut Co., Pittaburgh, Pa. Sternbergh J. H., Reading, Pa.
Clocks, Springs, &c. Cary & Moen, 234 W. 29th, N. Y	Hardware (Wagon.) Covert E. & J. C., Farmer Village, N. Y. Harness Snaps. Covert Mg. Co., Troy, N. Y.	Boyd & Chase, 107th and Harlem River, N. Y
Clothes Pin. (Metallic) Brower J. I. & Son, 286 Greenwich, N. Y	Hay Knives. Holt Hiram & Co., East Wilton, Me	Oil Tanks. Kellogg & Johnson, Elmira, N. Y
Coal, Miners of. Pardee, A. & Co., 111 Broadway, N. Y. Tennessee Coal & Railroad Co., Tracey city, Tenn. 6 The Hoboken Coal Co., Jersey City, N. J.	Hinges. Lewis, Oliver & Phillips, Pittsburgh, Pa. Stanley Works, New Britain, Conn.	Patent Solicitors.
Coal Hods. Esterbrook, Wm. Philadelphia, Pa	Hog Ringers.	Howson & Son, Phila. and Washington, D. C
Coal Vases. Sidney Shepard & Co., Buffalo, N. Y	Chambers, Bering & Quinian, Decatur, III	O The same on Duomas Consistence Co O Western beaution
Coffee and Spice Mills. Lane Brothers, Millbrook, N. Y	Davis A. J. & Co., Newark, N. J. Mundy J. S., Newark, N. J. Heisting Machines.	9 Picks, Makers of. 37 Pierson & Co 24 Broadway, N. Y. 38 Pipes, Fittings, etc., Makers of. Fator, Cole & Burnham Co. & John N. V.
Compasses and Dividers, Manufacturers of. Bemiss & Call Hardw. & Tool Co., Springfield, Mass. 12 Coopers' Tools, &c., Manufacturers of. D.R. Barton Tool Co., Rochester, N. Y.	Hoisting Machines. Harrington Edwin & Son', Philadelphia, Pa Hooks (Cotton & Hale.) New York Handle & Mallet Works, 456 E. Houston.	Eaton, Cole & Bernham Co., 58 John, N. Y.  McNab & Harlin Mfg. Co., 56 John, N. Y.  Pancoast & Maule, 227 Pear, Philadelphia.
D. R. Barton Tool Co., Rochester, N. Y	New York handle & Mailet Works, 450 E. Houston.  Horse Clippers.  Boker, Hermann & Co., Ior & Iog Duane, N. Y.  J. J. Shannon, Philadelphia, Pa.  Horse Nail So., & Washington, N. Y.  Ausil Rail Co., & Warren, N. Y.  Ausable Horse Nail Co., & Warren, N. Y.  National Horse Nail Co., Chicago, Ill.  Putnam Nail Co., Neponset, Mass.  Saranac Horse Nail Co., Plattsburg, N. Y.  Horse, Naices, M. Markers of.	Pipe Tongs.  Mansfield Elastic Frog Co., New Haven, Conn
Corn Huskers. Chambers, Bering & Quinlan, Decatur, Ill	Anvil Nail Co., 65 Washington, N. Y	Wood R. D. & Co., 400 Chestnut, Philadelphia Plane froms, Manufacturers of, Buck Bros., Milbury, Mass. D. R. Barton Tool Co., Rochester, N. Y.
Corn Shellers Rumsey & Co., Seneca Falls, N. Y. The Gould Mfg. Co., Seneca Falls, N. Y.	National Horse Nail Co., Vergennes, Vt. Northwestern Horse Nail Co., Chicago, Ill. Putnam Nail Co., Neponset, Mass.	D. R. Barton Tool Co., Rochester, N. Y.  Planes, Manufacturers of.  Bailey Wringing Machine Co., on Chambars, N. V.
Corrugated Iron. Moseley Iron Bridge and Roof Co., 5 Dey, N. Ygt Crucibles, Manufacturers of. Wile, Siedel & Co., 709 Market, Phila	Saranac Horse Nail Co., Plattsburg, N. Y	Planes, Manufacturers of. Balley Wringing Machine Co., 99 Chambers, N. Y. D. R. Barton Tool Co., Rochester, N. Y. Stanley Rule and Level Co., 29 Chambers, N. Y. Plated Ware.
Cupolas & Blowers. Smith & Sayre Mfg. Co., 21 Cortlandt st., N. Y36	Schoenberger & Co., Pittsburgh, Pa	
Curry Combs, Manufacturers of. Lawrence Curry Comb Co., 382 2d av., N. Y	McLean John, 300 Monroe, N. Y.	24 Pocket Knives.
Cutlery, Importers of. Boker Hermann & Co., 101 Duane, N. Y. Clatworthy F. & W., & Chambers, N. Y. Fisher Jos. S., 41 Commerce, Phile. Friedmann & Lauterjung, 14 Warren, N. Y.	Hydraulic Jacks.  Dudgeon Richard, 24 Coiumbia, N. Y  Ice C) cepers.  Barnum E. T., Detroit, Mich  Childs, Groff & Co., Cleveland, O	Mohamis & Hust and vegetable.
Cutlery, Manufacturers of.	Insurance, Boller.	Presses, Power, Makers of. Bliss & Williams, 16; Plymouth, Brooklyn Merriman A. H. West Meriden, Conn. The Stiles & Parker Press Co., Middletown, Ct.
Goodell Company, Antrim, N. H. John Russell Cutlery Co., 90 Chambers, N. Y.  Marx Bross, 430 Broadway, N. Y.  Montdon Cutlery Co., 40 Chambers, N. V.  Montdon Cutlery Co., 40 Chambers, N. V.	Iron Brokers. Boynton Geo. A., 70 Wall, N. Y. Collins H. E. & Co., Pittsburgh, Pa.	Penfield Block Works, Lockport, N. Y
Godell Company Antrim, N. H. John Russell Cutlery Co., o Chambers, N. Y. Marx Bros., 430 Broadway, N. S. Meriden Cutlery Co., 40 Roys, N. Y. Naugatuck Cutlery Co., 69 Chambers, N. Y. Syracuse Cutlery Co., 87 Aracuse, N. Y. The Frary Cutlery Co., 87 Aracuse, N. Y. The Frary Cutlery Co., 87 Aracuse, N. G. The Lamson & Goodnow Mfg. Co., 88 Chambers, N. Y.	Fron Byrokers.  Boynton Geo. A., 70 Wall, N. Y.  Collins H. E., & Co., Pittsburgh, Pa.  Etting Edward J., Philadelphia, Pa.  Hatry & Friend, Pittsburgh, Pa.  Lyon, Charconl. Warm or Cold Blast	Acid Pump & Siphon Co. New London Conn
The Lamson & Goodnow Mfg. Co., 88 Chambers, N. Y	lron, Charconl, Warm or Cold Blast, Quincy John W., 98 William, N. Y Iron Commission Merchants, Adams Hugh W., 66 Pine N. Y.	Douglas W. & B., Middletown, Conn. Gunnison, A. B., Eric, Penn. Rumsey & Co., Seneca Falls, N. Y
Differential Pulley Blocks. Yale Lock Mfg. Co., 43 Chambers, N. Y.  Dinner Pail & Lanterus. Haight, Jos. Portchester, N. Y.	Spooner & Collins, St. Louis, Mo	Union Mfg. Co., 98 Chambers, N. Y.  Rambert Fron or Steel, Makers of.
Discount Tables.  Jennings S. H., Deep River, Conn	Williamson Tomon & Co. 4. 797 - 11 av an	4 Rails, fron or Steel, Makers of. Cambris Iron Co., Johnstown, Fa. 4 The Edgar Thomson Steel Co., 57 Broadway, N. Y. Railway, Car and Locomotive Forgings, Wilson, Walker & Co., Pittsburgh, Pa.
Door and Gate Springs. Dunne P. R., 185 Fulton, N. Y. Van Wagoner & Williams, 82 Beekman, N. Y	Bonnell, Botsford & Co., Youngstown, O. Borden & Lovell, 70 and 71 West, N. Y. Carmichael W. J., 130 and 122 Cedar, N. V.	Wilson, Walker & Co., Pittsburgh, Pa
Drilling Machines, Makers of. Thorne, De Haven & Co., Philadelphia. Wiley & Russell, Greenfield, Mass	Cooney Daniel F., 88 Washington, N. Y.  Huerstel G., 90 Market Slip, N. Y.  Harrison & Gilloon, 588 to 562 Water, N. Y.	Rivets. Gilmor Wm., of Wm., Baitimore, Md. Grundy, Geo. C., 16s Greenwich, N. Y. Old Colony Rivet Works, Kingston, Mass. Townsend W. P. & Co., Pittaburgh, Pa.
Drop Forgings. Rose Wm. & Bros., West Philadelphia Pa	Iron Dealers. Abeel Brothers, 190 South, N. Y. Bonnell, Botsford & Co., Youngstown, O. Borden & Lovell, 70 and 71 West, N. Y. Carmichael W. J., 130 and 132 Cedar, N. Y. Carmichael W. J., 130 and 132 Cedar, N. Y. Cooney Daniel F., 88 Washington, N. Y. Huerstel G., op Market Silp, N. Y. Harrison & Gillioon, 198 to 55; Waster, N. Y. J. H. Jackson & Co., 206 and 208 Franklin, N. Y. Judson B. F., 457 and 459 Water, N. Y. Kane C., Pittsburgh, Pa. Lundberg Gustaf, 38 Kilby, Boston, Mass. Ogden & Wallace, 85, 25, 89 and on Elm, N. Y. Flerson & Co., 24 Broadway, N. Y. Flerson & Co., 25 Mangin, N. Y. Richards D. W. G. William, N. Y. Richards D. W. G., 62 Mangin, N. Y. Wallace Win, L. G., 65 Mangin, N. Y. Wallace Win, L. G., 65 Mangin, N. Y. Wallace Win, L. G., 65 Mangin, N. Y. Williamson James & Co., 60 Wall, N. Y. Whitney A. R., 28 Hudson, N. Y.  Iron. (Manafacturers' Agents.)	Old Colony Rivet Works, Kingston, Mass
Drop Presses. Beecher & Peck, New Haven, Conn	Ogden & Wallace, 55, 87, 89 and 91 Elm, N. Y. Fierson & Co., 24 Broadway, N. Y. Puilmann J. Wesley, Philadelphia B.	Garrison A. & Co., Pittsburgh, Pa
Edge Tools, Wakers of. Doscher M., of Chambers, N. Y. M. Gregg & Son, Rochester, N. Y. The D. R. barton Tool Co., Rochester, N. Y.	Quincy John W., 98 William, N. Y. Richards D. W. & Co., 92 Mangin, N. Y. Wallace Wm. H. & Co., Albany and Washington	Stephens & Co., Riverton. Conn.  Snd Irons. American Machine Co., Philadelphia. Enterprise Mfg. Co., Philadelphia.  Sand and Emery Paper. Makers of.
Hogan Elbow Co., Cleveland, Ohio	Streets, N. Y. Warner A. B. & Sons, 28 and 29 West, N. Y. Williamson James & Co., 69 Wall, N. Y. Whiteny A. B.	Enterprise Mfg. Co., Philadelphia
Elevators, Makers of. Crane Bros. Mfg. Co., Chicago, Ill	Levis & Limban, Filliadelphia, Pa	5   Sawa, Makers of
Elevator Buckets. Rowland T. F., Brooklyn, N. Y32	Albany & Rensselaer Iron & Steel Co., Troy N. Y., Bradley, Reis & Co., 22 Cliff, N. Y.	American Saw Co., Trenton, N. J.  Disston Henry & Sons, Phila.  Peace Harvey W. Williamsburg, N. 1.
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hcenix iron Co., 410 Walnut, Philadelphia	Screws, Makers of, American Screw Co., Providence, R. I. Miles F. S., 205 Quarry, Phila Philadelphia Screw Co., Philadelphia, Pa
owland James & Co., 920 N. Delaware, Phia	Philadelphia Screw Co., Philadelphia, Pa Screw Cutting Machinery.
aytor & Boggis, Cleveland, O	Screw Cutting Machinery. Howard Iron Works, Buffalo, N. Y
uloan Iron and Nall Works, Chattanooga, Tenn 6 [28] Iron and Tin Plate Co., Pittsburgh, Pa 5 [7] Jason Car and Foundry Co., Chattanooga, Tenn 6	Screw Drivers, (Improved) Makers of. Disston Henry & Sons, Phila
rood Alan & Co., 519 Arch Philadelphia 5 ug & Co., Pittsburgh, Pa 4	Scroll Saws. Lewis Mg. Co., Seneca Falls, N. Y Scythes. Beardaley Scythe Co., West Winsted, Conn Scythe Stones.
Vood W. D. Co. Pittsburgh, Pa 4	Scythe Stones. Pike A. F., East Haverhill, N. H. Shovels, &Co. Rowland B. & Co., Philadelphia.
Interns.   Manufacturers of.   Idetz R. E. (Tubular) 54 and 56 Fulton, N. Y	Rowland B. & Co., Philadelphia Shot. &cc.
oward & Morse, 45 Fulton, N. Y	Shot, &c. Sparks Thos. W., 121 Walnut, Philadelphia Shears Sheep).
thes.	Field, Alfred & Co., 93 Chambers, N. Y Smelting Works.
ohnson, Jr. Israel H. & Co., Philadelphia36 wn Mowers. thio Mfg. Co., Cleveland, O	Sparks Thos. W., 121 Wainut, Philadelphia. Shears (Sheep). Hildick A. H. & Co., 12 Warren, N. Y. Field, Alfred & Co., 03 Chambers, N. Y. Smelting Works. Reeves Paul S., 760 South Broad, Phila. Spenking Tubes. Ostrander W. R., 19 Ann, N. Y.
vels.	Speiter. Manning & Squier, 113 Liberty, N. Y Osgood F. & Co., Bergen Port, N. J
cks, Manufacturers of.	Osgood F. & Co., Bergen Port, N. J Springs. Carey & Moen. 224 W. 20th. N. Y.
ohannan Wilson, Broadway and Kossuth, Brook- lyn, E. D. onestora Lock Works, Lancaster, Pa. 34 onestora Lock Co., Philadelphia, Pa. 37 of Treed J., Wall Co., Philadelphia, Pa. 37 of Treed J., Wall Co., St. Chambers, N. Y. 38 mith & Egre Mrg. Co., St. Chambers, N. Y. 24 achinery. Makers of, 24	Gautler Steel Co., Ld., Johnstown, Pa Rowland Wm. & Harvey, Frankford, Phila
Toyt Fred J., 733 Broadway, N. Y	Shepard Sidney & Co., Buffalo, N. Y
achinery. Makers of.	Steam Hollers. Firmenich J. G. & F., Buffalo, N. V
liss & Williams, 167 Plymouth, Brooklyn37 landers L. B., 2025 Hamilton, Phila36	Steam Cookers. Hale Dr. Jos., 51 Washington, Boston, Mass
arvin E. E. & Co., 130 Center, N. Y. 24 Iohawk & Hudson Mig. Co., Waterford, N. Y. 34 Illes Tool Works, Hamilton, O. 37	Steam Hammers, &c., Makers of.  Dudgeon Richard, 24 Columbia, N. Y.  Steam Pumps, &c., Manufacturers of.
ale Lock Mfg. Co., & Chambers, N. Y. 24  schinery. Makers of, Timouth, Brooklyn. 37  liss & Williams. 167 Plymouth, Brooklyn. 37  liss & Williams. 167 Plymouth, Brooklyn. 35  savvin E. E. & Co., 139 Center, N. Y. 24  tohawk & Hudson Mfg. Co., Waterford, N. Y. 34  tiles Tool Works, Hamilton, O. 17  hiladelphia Hydraulic Works, Philadelphia Pa., 32  titsburgh Mfg. Co., Pitsburgh, Pa., 31  titsburgh Mfg. Co., Fitsburgh, Pa., 32  titsburgh Mfg. Co., Fitsburgh, Pa., 37  teller W. W. A. Co., 56  he Stilea & Paker Press Co., Middelown, Ct., 37  Vetherill Robert & Co., Chester, Pa., 37  zechinary, Ragnes, Page Pawer, 37	Cameron A. S., East 23d, N. Y. Clayton Jas., 11 Water, Brooklyn, N. Y.
ellers Wm. & Co., 1600 Hamilton, Philadelphia37 The Bullard Machine Co., 14 Dev. N. Y	Kelly Wm. E., 46 Cortland, N. Y
he Stiles & Paker Press Co., Middletown, Ct37 Vetherill Robert & Co., Chester, Pa	Shultz M., Cincinnati, O Valley Machine Co., Easthampton, Mass
Attle Chas. E., 50 Fulton, N. Y36	Ramsay H. A. & Co., Baltimore, Md Steel Castings, Manufacturers of.
achine Screws, Makers of. yon & Fellows Mfg. Co., Williamsburg, N. Y38 achinists' Tools, Makers of. ilaisdell P. & Co., Worcester, Mass36	Manning & Squier, 113 Liberty, N. Y. Osgood F. & Co., Bergen Port, N. J. Springs. Carey & Moen, 234 W. 20th, N. Y. Gautier Steel Co., Ld., Johnstown, Pa. Gautier Steel Co., Ld., Johnstown, Pa. Rowland Wm. & Harvey, Frankford, Phila. Stamped and Japanned Tin Ware. Schepard Sidney & Co., Buffalo, N. Y. The Chicago Stamping Co., Chicago, Ill. Steam Hollers. Firmenich J. G. & F., Buffalo, N. Y. Lesile Boiler Works, Jersey City, N. J. Steam Cookers. Hale Dr. Jos., 51 Washington. Boston, Mass. Steam Hammers, & Co., Makers of, Dudgeon Richard, 24 Columbia, N. Y. Steam Hammers, & Co., Makers of, Clayton Jas., 11 Water, Brooklyn, N. Y. Crane Bros. Mig. Co., Chicago, Ill. Kelly Wm. E., 46 Cortland, N. Y. McGowan John H. & Co., Cincinnati, O. Shuitz M., Cincinnati, O. Valley Machine Co., Easthampton, Mass. Steen Winder. Ramsay H. A. & Co., Baltimore, Md. Steel Castings, Manufacturers of, Chester Steel Castings Co., Evelina, Phila., Pa. Eureka, Cast Steel Co., Chester, Fa. Flags Stanley G. & Co., ci and 216 N. 3d, Phila. Flags Stanley G. & Co., ci and 216 N. 3d, Phila. Flags Stanley G. & Co., ci and 216 N. 3d, Phila. Flags Stanley G. & Co., ci and 216 N. 3d, Phila.
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allets. 7. Y. Handle and Mallet Works, 456 E. Houston10	Pierson & Co., 24 Broadway, N. Y
echanics' Tools. ennings C. E. & Co., 98 Chambers, N. Y	Pittsburgh Steel Casting Co., Pittsburgh, Pa Steel Importers. Carr J. & Riley, 8s John, N. Y. Hobson Francis & Son, 9r John, N. Y. Moss F. W., 8o John, N. Y. Moss F. W., 8o John, N. Y. McCoy & Co., 134 And 136 Duane, N. Y. Wolff R. H. & Co., 10 Cliff, N. Y. Steel (Mushet Special.) Randall & Jones, 10 Oliver, Boston, Mass Steel Manufacturers.
easuring Tapes. ddy deo. M. & Co., 333 Classon Ave., Brooklyn, N.Y. 9 eat Chopping Machinery. furray Iron Works, Burlington. Iowa	Randali & Jones, 10 Oliver, Boston, Mass. Steel Manufacturers, Albany & Rensselaer Iron & Steel Co., Troy, N. Y. Gautier Steel Co., Ld., Johnstown, Pa., Midvale Steel Works, Nicetown, Phila., Pa., Miller, Metcali & Parkin, Pittsburgh., Rowland Wm. & Harvey, Frankford, Phila., Sanderson Bros., Steel Co., Syracuse, N. Y. Smith, Sutton & Co., Pittsburgh, Fa., Singer, Nimite & Co., Pittsburgh, Fa., Spencer I. R. & Son, Sheffield, England., Standard Steel Works, Philadelphia, Fa., The Edgar Thomson Steel Co., 9 Broadway, N. Y. Wardlow S. & C., Sheffield, England.
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Prayes O. W., Cor. Cliff and Beekman, N. Y 4 Phelps, Dodge & Co., Cliff, bet. John & Fulton, N. Y.	Sanderson Bros., Steel Co., Syracuse, N. Y Smith, Sutton & Co., Pittsburgh, Pa.
Purves A. & Son, cor. South and Penn, Phila	Singer, Nimick & Co., Pittsburgh, Pa. Spencer I. R. & Son, Sheffled, England.
Olckerson, Van Dusen & Co., 20 and 31 Cliff. N. Y. 2 iraves O. W., Cor. Cliff and Beekman, N. Y. 4 helps, Dodge & Co., Cliff, bet. John & Fulton, N. Y. 2 urves A. & Son, cor. South and Penn, Phila. 4 tead, D. W. R. & Co., 2054 Walnut, Phila. 5 puincy J. W., 98 William, N. Y. 6 ellew R. & Co., St. Louis, Mo. 2 starr John, Halifax, Nova Scotia. 12	The Edgar Thomson Steel Co., 57 Broadway, N. Y Wardlow S. & C., Sheffield, England.
ronclad Manufacturing Co., Brooklyn, N. Y31	wardow S. C., Seemen, England Steel Shutlers, Clark & O., 102 and 16 W. 27th, N. Y. Stark & O., 102 and 16 W. 27th, N. Y. Clark & Moen, Sw. Westh, N. Chalillou & Sons, 91 and 93 Cliff, N. Y. Steuchl Stamps.
etallurgists. ritton J. Biodgett, 339 Walnut, Philadelphia 5	Cary & Moen, 234 W. 29th, N. Y. Chatillon & Sons, 91 and 93 Cliff, N. Y.
ica. chester Mica & Porcelain Co., 87 Liberty, N. Y27	
ill Gearing.  coole & Hunt, Baltimore	Holroyd & Co., Waterford, N. Y Prentiss H. & Co., 14 Dey st., N. Y Wiley & Russell Grandeld Mass
iners' Candles, Makers of. ames Boyd's Sons, 10 and 12 Franklin, N. Y	Metal Stamping & Enameling Co., St. Louis, Mo
Hoskins W. A., Chattanooga, Tenn	Nash & Koelffer, 280 Fearl, N. Y.  Stocks and Bles, Holroyd & Co., Waterford, N. Y. Frentisk H. & Co., 14 Dey st., N. Y. Wiley & Russell, Greenfield, Mass Store Fronware. Motal Stamping & Enameling Co., St. Louis, Mo., Store Boards, Manufacturers of. Shepard Sidney Co., Butfalo, N. Y.  Shepard Sidney Co., Butfalo, N. Y.  Store Pine.
odels. Surrows Wm., 99 Fulton, N. Y	Stove Pipe. Chicago Stamping Co. Stove Repairs. Motzner W. C., Chicago, Ill.
olding Nund. Whitehead Bros., 517 W. 15th, N. Y	Metzner W. C., Chicago, Ill
ouse Traps. Dietz R. E., 54 and 56 Fulton, N. Y	
Dietz R. E., 54 and 56 Fulton, N. Y	7HOVED
nils. ichoenberger & Co., Pittsburgh, Pa	/III:KFR
ail Machinery. Coyne & Hatry, Pittsburgh, Pa	LUUNLII
il Puller.	
iartman John, 37% N. Seventh, Philadelphia35	MINUKEI
ckel Platers' Supplies. Condit, Hanson & Van Winkle, Newark, N. J35 Zucker & Levett, 639 and 641 W. 51st, N. Y23	MILE K - I
cucker & Levett, 039 and 041 W. 518t, N. Y	HIUNLL
ote Broker.	
at Tapping Machines.  joward Iron Works, Buffalo, N. Y	OIID
its, Bolts, etc., Makers of. Jaskell W. H. & Co., Pawtucket, B. I	6.110
Russell, Birdsall & Ward, Port Chester, N. Y38 Shelton Co., Birmingham, Conn	AllF
tandard Nut Co., Pittsburgh, Pa31 ternbergh J. H., Reading, Pa38	001

Л	Stove Trucks
1	Stove Trucks. Tucker Alarm Till Mfg. Co., Indianapolis, Ind32
١	Bugar Spout.
ı	Tacks.
1	American Tack Co., Fairhaven, Mass
ı	Dunbar, Hobard & Whidden, 116 Chambers, N. Y. 33 Field A. & Sons, Taunton, Mass.
1	Grundy Geo. C., 165 Greenwich, N. Y
1	Tana and Dies.
ı	Carpenter J. M., Pawtucket, R. L
1	Wiley & Bussell Greenfield Wass
1	Tin Plate. Importers of
١	N. & G. Taylor Co, Philadelphia
١	U. S. Iron and Tin Plate Co., Pittsburgh, Pa
1	Trowels. W., I Platt, New York to Try Squares, Bevels, &c., Makers of. Disson Henry & Sons, Phis
1	Bruce Geo. W., r Platt, New York
1	Disston Henry & Sons, Phia
١	Disston Henry & Sons, Phila.  Tubes. Deaken Robt. T. & Co., 500 N. 12th., Phila.  12 Tube Expanders. Dudgeon Richard, 24 Columbia, N. Y.  12 Twist Drills, Makers of. Morse Twist Drill & Mach. Co., N. Bedford, Mass.  13 Uphonserers Ground, Co. & Reade, N. Y.  14 Ives. Gas. Water and Steams.  14 Judow Valve Mig. Co., Troy N. Y.  15 Wohawk & Hudson Mig. Co. Waterford, N. Y.  16 Ventilators.  17 Bracher Vontilator Co., 3 Park Row, N. Y.  18 Vises.
	Tube Expanders.
	Twist Drills, Makers of.
	Morse Twist Drill & Mach. Co., N. Bedford, Mass 33
	Turner & Seymour Mfg. Co. & Reade, N. V.
	Valves, Gas, Water and Steam.
	Ludlow Valve Mfg. Co., Troy N. Y
ı	Ventilators.
	Bracher Ventilator Co., 3 Park Row, N. Y 8
	Vises. Bailey Wringing Machine Co., oo Chambers, N. Y21
	Bonney C. S. & Son, Frankfort, Philadelphia32
	Wells Bros. Greenfield, Mass.
	Watchman's Time Detectors.
	Vises.  Bailey Wringing Machine Co., 90 Chambers, N. Y21  Bonney C. S. & Son, Frankfort, Philadelphia 32  Millers Falls Co., 24 Chambers, N. X 21  Wells Bros., Greenfield, Mass.  Watchmau's Time Detectors.  Buerk J. E., Boston, Mass 35  Water Wheels 35  Millert & Co., Reading, Pa 33  Weather Strips 33
	Millert & Co., Reading, Pa33
	Millert & Co., Reading, Pa
	Wedges.
1	Wedges. Am. Sleigh and Carriage Iron Co., Boston Mass38 Wheelbarrows.
,	Bodgers H. A., 10 John .N. Y
	White Lead, Manufacturers of. Brooklyn White Lead Co., 80 Majden Lane, N. Y., 32
	Colgate Robert & Co., 287 Pearl, N. Y
)	Jewett John & Sons, 182 Front, N. Y32
k	Window Springs, Makers of.
į	Hammond W. S., Lewisberry, Pa 7
ì	Cary & Moen, 234 W. 20th, N. Y.
	Gautier Steel Co., Ld., Johnstown, Pa 28
ì	Haigh J. Lloyd, & John, N. Y.
ļ	Harrison Wire Co., St. Louis, Mo 2
ļ	Prentiss Geo. W. & Co., Holyoke, Mass
ì	Washburn & Moen Mfg. Co., Worcester, Mass 2
ı	Weather Strips. Bracher Ventilator Co., 3 Park Row, N. Y. Wedgrs. Am. Sleigh and Carriage Iron Co., Boston Mass., 38 Wheelbarrows. John N. Y. Godgers H. A., Mongherberro of, Brooklyn White Lead Co., 89 Maiden Lane, N. Y., 32 Colgate Robert & Co., 287 Pearl, N. Y. Jewett John & Sons, 183 Front, N. Y. Jewett John T. & Bros., 218 Front, Phila., Pa., 32 Lewis John T. & Bros., 218 Front, Phila., Pa., 32 Lewis John T. & Bros., 218 Front, Phila., Pa., 32 Window Springs, Mokers of, Hammond W. S. Lewisberry, Pa., 7 Wire, Manufacturers of, Cary & Moen, 24 W. 20th, N. Y. Gautier Steel Co., Ld., Johnstown, Pa., 28 Gilbert & Bennett Mig. Co., 237 Pearl, N. Y. 3 Hatgh J. Lloyd, 81 John, N. Y. Harrison Wire Co., St. Louis, Mo., 22 Howard & Morse, 45 Fulton, N. Y. Prentiss Geo. W. & Co., Holyoke, Mass, 28 Washb urn & Moen Mig. Co., Worcester, Mass, 27 Troy Wire Co., Troy, N. J. Troy Wire Co., Troy, N. J. Worcester Wire Co., Worcester Mass, 3 Wire Prawing Machinery. Att John, New Haven, Ct., 5 Heald S. & Son. Barre, Mass. Wrong & Sharpe Mig. Co., Providence, R. I. 9 Wive Goods, Manufacturers of, Gilbert & Bennett Mig. Co., 27 Gilbert & Bennett Mig. Co., 27, 29 Pearl, N. Y. 2 Oliver E., 106 and 108 Beekman st., N. Y. 2 Hassall William, 6a and 65 Elizabeth, N. Y. 2 Hassard Mig. Co., Wilkesbarre, Pa. Roebling's John, N. Y. 2 Hassard Mig. Co., Wilkesbarre, Pa. 2 Recelling's John, N. Y. 2 Hassard Mig. Co., Wilkesbarre, Pa.
	Worcester Wire Co., Worcester Mass 3
	Wire Drawing Machinery.
Š	Heald S. & Son, Barre, Mass
3	Wire Gauges.
ŝ	Wire Goods, Manufacturers of.
3	Gilbert & Bennett Mfg. Co. 273 Pearl, N. Y
3	Wire Nalis.
i	Hassall William, 63 and 65 Elizabeth. N. Y21
ì	Wire Rope, Iron and Steel, Makers of. Broderick & Bascom. St. Cotts, Mo
	Haigh J. Loyd, 8t John, N. Y
)	Rochling's John A. Sons, Trenton, N. J.
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2	
B	Wrenches, Manufacturers of.
	Wreaches, Mansfacturers of. Bemis & Call Hdw. & Tool Co., Springfield, Mass. 12 Coes A. G. & Co., Worcester, Mass. 16 Coes L. & Co., Worcester, Mass. 17 Girard Wrench Mig. Co., Girard, Pa. 6 Rogers H. A., 19 John, N. Y. 34
í	Coes L. & Co., Worcester, Mass
Š	Rogers H. A., 19 John, N. Y.
3	Wringers.
	Wringers, Adams F. F. & Co., Erle, Pa
í	Alexander T. J., Boston, Mass. Bailey Wringing Machine Co., 99 Chambers, N. Y., 21 Metropolitan Washing Machine Co., 52 Cortlands,
	Metropolitan Washing Machine Co., 52 Cortiands, N. Y
9	Peerless Wringer Co., Cincinnati, O.,
3	The American Machine Co., Philadelphia21

# & LEVETT, PLATERS' PLIES.

Estimates for Complete Outfits Furnished. 639 & 641 West 51st Street, New York.



Patented Hardware Manufacturers and Iron Founders, THIRD and DAUPHIN Sts., PHILADELPHIA.



Enterprise Patent Cold Handle Double Pointed

SMOOTHING AND POLISHING IRONS. CHAMPION TOBACCO CUTTERS, PATENT MEASURING FAUCETS, CHAMPION DRIED BEEF SHAVERS. SELF-WEIGHING CHEESE KNIVES, &c., &c.

SPECIALTIES. COFFEE, SPICE AND DAUG MILLS SAUSAGE STUFFERS, FRUIT, LARD and JELLY PRESSES,

#### The Stamped Stove Pipe Elbow. HOGEN'S PATENT.

The Stamped Elbow has notifier Crimps, Cavities nor Angles while cause accumulations that rust or corrods the iron.

STAMPED ELBOW CO. formerly House Elbow Co., OFFICE AND WORKS, Wason St, on Lake Shore, CLEVELAND, O. onnage in comparison with the other totals. The following are the receipts of Raw Iron for each month during the past year, with a comparison of totals for five years pre-

	Metal,	Ore,	Scrap,	Blooms,
January	20,416	25,240	1,785	70
February	18,154	12,100	2,655	1,208
March	23, 101	19,530	2,925	890
April	18,164	19,320	4,840	470
May	15,286	17,590	2,157	870
June	13,028	16,760	2,516	810
July	16,255	15,400	1,820	990
August	14,350	25,790	3,230	530
September	11,745	18,720	2,410	990
October	17,770	22,850	5,880	1,280
November	14,676	25,150	2,940	760
December	15,735	23,350	2,320	1,340
Total	198,680	231,730	33,471	10,148
1877	90,885	¥95,595	39,913	6,318
1876	177,833	173.558	35,066	30,645
1875	173,843	373,596	53,286	7,880
x874	257,6XX	255,317	*30,990	
1873	298,133	320,842	*12,209	
# Include b	oth Sern	n and Bloo	ma	

An analyses of these figures, in relation to the sources of supply, show quite a change in the tonnage from different sections. To show this change, we append a table giving the receipts of metals by each railroad centering in Pittsburgh, and by river, for the past three years:

Pitts., Ft. Wayne and C	Tons.	Tons. 95,270	Tons. 63,370
Cleveland and P	12,925	7,539	3,860
Pennsylvania	27,312	38,622	48,840
Baltimore and Ohio		12,302	13,080
W. Penn		16,202	28,745
All. Val	14,025	4,898	4,480
P. Cinn. and St. L	14,674	x83	1,190
River	30,078	15,869	35,115
Total	914.588	100.88s	108.680

The noticeable feature of this table is the falling off in the receipts over the Pitts-burgh, Fort Wayne and Chicago Railroad, or of metal from the Shenango and Mahoning valleys, amounting to 52,000 tons less in 1878 than in 1876, and the increase in receipts over the Pennsylvania Railroad. These have increased 22,000 tons.

#### STOCKS OF PIG IRON AT PITTSBURGH.

The stocks of Pig Iron in the brokers yards in Pittsburgh, on the 1st day of January, for the past four years, are as follows:

Kind of Iron. Coke. Forge 'Foundry Charcoal	25,500	Stock Jan. 1, 1877. 15,000 790 6,650	Stock Jan. 1, 1878. 15,880 ( 900 ) 7,320	Stock Jan. 1, 1879. 27,215
Total	42,000	22,400	24,100	39,387

The increase, it will be seen, is considerable, but if the stocks at the mills are reckoned, the total stock in the city will not be increased. COAL AND COKE SHIPMENTS FROM PITTSBURGH

The statistics of the shipments of Coal and Coke down the Ohio River show a large business for the year just closed. The total falls about 1,000,000 bushels below the unprecedented shipments of 1877, but, with that exception, are the largest year's shipments on record, being 3,000,000 bushels larger than those for 1875, which were the largest previous to 1877. From the figures below it will be seen that the average shiplargest previous to 1877. From the figures below, it will be seen that the average ship-ments of Coal and Coke down the river from Pittsburgh, for the past ten years, have been 54,632,000 bushels, or a little more than 2,000,000 tons. The shipments for the past year are 11,000,000 bushels

for the past year are 11,000,000 bushels above the average.

From the figures below, it appears that nearly two-thirds of the shipments were made in the first half of the year, the total for the first six months being 42,110,000 bushels. This movement is only exceeded by the corresponding period of 1877, in which the shipments were 43,039,500 bushels, and the next largest shipments during a similar period are those for the during a similar period are those for the last half of 1875, in which they aggregated 40,807,000 bushels. The shipments for the last half of the past year were light, being only a trifle over 23,000,000 bushels.

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80	x4	174						٠					0	۰	۰	۰						۰											.50,025,000
9.0	Ri	73										۰												0									. 58,518,500
66	x8	73																٠						0									.53,333,000
86																																	-44,404,000
8.6																																	41,175,000
6.6																																	.43,530,000

The distribution of these shipments is to which the Coal was shipped. These figures, it must be remembered, do not give the ultimate destination of the Coal, but only the points to which the original tows were made up. A large share of the Coal shipped to Cincinnati and Louisville, was reshipped from those cities to other down-river The statement is as follows:

Cincinnati	 	 
Louisville	 	 38,068,000
Wheeling	 	 675,000
Bellaire	 	 136.000
St. Louis	 	 I,003,000
Ashland	 	 92,000
New Albany.	 	 87,090
Ironton	 	 28,000
Natchez		
Madison		
New Orleans	 	 880,000
Total		 65,697,000

#### The bushel is 76 lbs Hanging Bock Charcoal Irons.

The make of Pig Iron in this district has declined rapidly in the past four or five years. In 1873 it was 92,365 net tons; in 1874, 85,873 tons; 1875, 57,413 tons, and in 1877, 40,212 tons. Many of the furnaces of this region have been abandoned for reasons connected with their location and the cost of making Pig Iron, and some are being changed

to Coke furnaces.

Most of the Iron produced in this region is marketed in Cincinnati. We are indebted to Mr. Sidney D. Maxwell, superintendent of the Cincinnati Chamber of Commerce, for advance sheets of his report on this industry.
From this report we learn that the past year in the Pig Iron business of Cincinnati and the districts tributary to it, in its leading features, have not been unlike the preceding 

taking a retrospect of the past five years, it presents a spectacle of depreciation, depression and loss which has had few parallels in the history of business in this country. The whole period has been one of a steady movement to lower values, which nothing was equal to resisting. Whatever lulis occurred in this journey to lower prices were but merciful spells, to enable producers and dealers to cather up their energies for still dealers to gather up their energies for still further shrinkage and trials. The past year, though not exhibiting the shrinkage of some preceding years, has been no exception in depreciation. To it appears to have been committed the occasion for wringing out from values all that remained to be removed. At the commencement of the year 1877-78. No. I Hot Blast Charcoal Iron was quotable. at Cincinnati, at \$23 @ \$24 per ton. Prices were nominally unchanged until February, when a decline of \$1 per ton was established; and again, in August, when an additional \$1 was taken from its value, the year closing \$1 was taken from its value, the year closing with this grade of Iron quotable at \$21 @ \$22, \$2 below the price at the opening of the year, and \$37 below the highest prices of 1872-73, when the quotation was \$58 @ \$50. The average quotation for this grade of Iron, at Cincinnati, in the past year, was \$22.84, compared with \$24.14 in 1876-77, \$25.16 in

855.33 in 1872-73, and \$46.74 in 1871-72.
Amid the changes which have been taking place in the Iron business of the country, it is a matter for the congratulation of our is a matter for the congratulation of our people, that the position of this city is steadily growing in importance as an Iron center. Cincinnati receives Iron from eight to ten States, and ships to as many. During the past year the scope of her distribution has been wider than ever before. The districts immediately tributary to the city can has been wider than ever before. The districts immediately tributary to the city can manufacture Iron as cheaply as any locality in the United States. The encroachments made on the production of Charcoal Iron by Stonecoal Metal, has been nowhere more apparent than in this vicinity, and the ability of our furnaces, in many instances, to manufacture Iron at prices which have taken a large number of furnaces, less fortunately located, out of blast, shows how strongly intrenched are our interests in this great department of industry. With the revival of the Iron business, it may be safely asserted that this section, embracing interests rich enough for the foundations of an empire, will be able to enter at once on the enjoyment of the improved condition, fully prepared to take a more influential position in Iron production than she has ever before enjoyed.

Table showing the quotations for the various kinds of Iron, in Cincinnati, at the close of August, for two years, the price being per ton, save where otherwise named:

Hot-Blast Charcoal.

#### Hot-Blast Charcoal.

Kinds.	1877-78.	1876-77.				
Hanging Rock No. 1	\$21.00 @ 22.00	\$23.00 @ 24.00				
Hanging Rock No. 2	10.00 @ 20.00	22.00 @ 22.50				
Hanging Rock Forge.	18.00 ( 19.00	20.00 @ 21.00				
Tennessee No. 1	10.00 @ 20.00	\$2.50 @ 23.00				
Tennessee Forge	17.00 @ 18.00	21.00 @ 22.00				
Alabama No. 1	10.00 @ 20.00	22.50 @ 23.00				
Missouri No. 1	19.00 @ 20.00	23.50 @ 24.50				
Missouri No. 2	18.00 @ 19.00	22.00 @ 23.00				
Hot-Blo	ast Stone Coal					
Missouri No. 1	\$19.00 @ 20.00	22.00 @ 23.00				
Missouri Forge		21.00 @				
Ohio No. 1	17.00 @ 18.00	21.00 @				
Ohio No. 2	16,00 ( 17.00	19.00 @ 20.00				
Ohio Forge	15.00 @ 16.00	19.00 @				
Cold-Bl	ast Charcoal.					
Hanging Rock Car						
Wheel	30,00 @ 33.00	35.00 @ 40.00				
Missouri Car Wheel	24.00 @ 27.00	30.00 @ 35.00				
Red River Car wheel.	24.00 @ 27.00	30.00 @ 35.00				
Tennessee Car Wheel	30.00 @ 31.00	30.00 @ 35.00				
Alabama Car Wheel	27.00 @ 32.00	30.00 @ 35.00				
Machinery and Forge.	23.00 @ 25.00	25.00 @ 28.00				
Blooms	32.00 @ 37.00	40.00 @ 50.00				
W	rought.					
Bar, Common, per		-				
Bar, Charcoal, per	\$2.00 @	\$2.00 @ 2.25				
100 lbs	3.20 @	2.90 @ 2.45				
Clause Clast 90 Han	30 60 60	3.20 (3) 501/				

.90 @ 1.00 .75 @ 1.00 Table showing the quotations per ton for Hot-blast Charcoal Iron No. 1, in Cincinzati,

Years.	Per ton.	Years.	Per to
1863-64	\$80.00	1871-72	\$57.00 @
1864-65	50,00	1872-73	47.00 @ 49.0
1865-66	53.00	1873-74	33.00 @ 34.0
x866-67		1874-75	27.00 @ 28.0
1867-68		1875-76	
1868-69	48,00	1876-77	23.00 (8) 24.0
* 96a - no	22.00	48-a	24 00 (1) 22 1

#### Ohio Iron Statistics.

The following interesting statistical information concerning the iron industry of Ohio, is condensed from the forthcoming report of Hon. W. J. Walls, State Commissioner of Labor Statistics. Labor Statistics :

The table is prepared to show the growth of the present blast-furnace industry of the State. The dates and figures are taken from public records and data prepared by old furnace men: Inc. ca- To'l ca-Stacks

	during	Total	for	end o
Year.	year.	stacks.	year.	year
1839	1	H	4,500	4,50
1832	3	4	13,000	16,50
1833	3	7	31,300	27,80
1834	9	9	8,500	36,300
1837	I	30	4,000	40,300
1839	1	II	4.500	44,800
1844	X	13	4,000	48,800
845	2	14	11,000	59,800
846	3	37	22,500	82,300
847	1	18	4,000	86,300
849	1	19	4,000	90,300
850	1	90	12,000	108,300
851	1	BX	4,000	100,300
850	3	23	8,000	334,300
853	4	27	17,000	131,300
854	11	38	61,500	192,800
855		39	6,000	198,800
550	I	40	5,000	203,800
859	3	43	30,000	233,800
860	3	46	30,000	263,800
861	1	47	10,000	273,800
862	X	48	6,000	279,800
863	3	49	6,000	285,800
864	2	51	14,000	299,800
865	9	53 58	11,000	310,800
866	5	58	35,000	345,800
867	4	69	52,000	397,800
868	5	67	50,500	457.300
869	3	90	35,000	492,300
70	4	74	41,500	533,800
571	3	27	33,000	566,800
572	6	23	80,000	646,800
Res	- 0	ALC:	94.500	68x, 200

### Furnaces not included in the foregoing

Furnaces not included in the foregoing table were erected in the years 1826, 1827, 1836, 1842, 1846, 1853, 1855 and 1856, a total of nine, all in the Hanging Rock region, all of which have been dismantled.

According to the foregoing table, the producing capacity of the blast furnaces of the State is, in round numbers, 900,000 tons answell—while the production has been been all the production and the state is the production of the beauty of the state is the production and the state is the state is the production and the state is the sta nually, while the production has barely equaled half the capacity during the past few years.

The number of present employees aggregates 5160 for the 53 furnaces in operation, and 4015 employees necessary to put in operation the other 56 furnaces that are now out of blast. The 5100 do not represent all the employees, as some of the furnaces purchase their coal and ore, and the producers thereof are not counted by the furnace proprietors in making their returns to the Bu-

It is a somewhat curious fact that while the opposition to Chinamen in this country comes from the laboring classes, the opposi-tion to Americans and Europeans in China is found among the men of rank and wealth. Mr. Jamieson, one of the English consuls in Mr. Jamieson, one of the English consuls in that country, says, in a recent report, that notwithstanding the liberal subscriptions made by foreigners in aid of the famine sufferers, the better classes would rather see the foreigners beyond the border than acknowledge the value of their assistance. The recipients of the aid have, however, shown much gratitude, and the missionaries have been properly into better fayor among have been brought into better favor among them by their efforts to allay the suffering. Changes of public opinion in China occur very slowly, and the comparatively few per-sons of the higher orders who have traveled in other lands, and thus obtained broader views, do not seem to have impressed their associates with their own convictions



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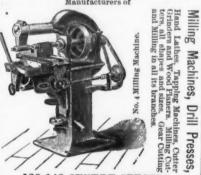


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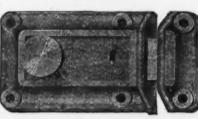
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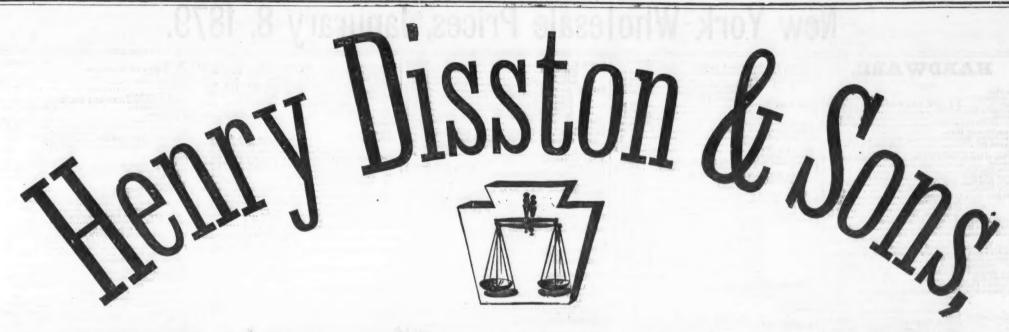
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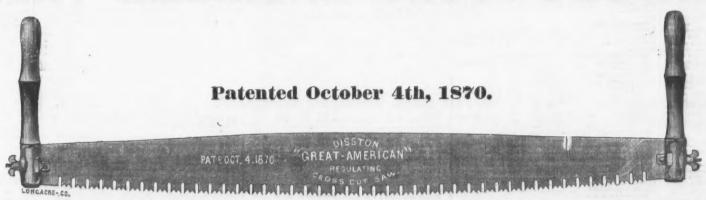
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Hollow Augers   Parmelee's	\$20.00 20.50 33.00 37.00  an Openers.  Lessenger's Comet.  Amaria.  Amaria.  Amaria.  Amaria.  Amaria.  Amaria.  Be de lyman's.  Foole.  No. 5, Iron Handie.  Eureks.  Starfine Scissors.  Starfine Scissors.  Eureks.  Starfine Scissors.  Eureks.  Eureks.  Eureks.  Eureks.  Eureks.  Caps-Percussion, † 1000.  Hicks & Goldmark's G. D. & S. R.  E. B. 1-10 Grour.  E. B. 1-10 Grour.  D. W. P. 140.  D. W. P. 140.  D. W. P. 140.  Cott's 1-10.  Lety's E. B.  Lety's E. B.  Cartridges.—Metallic.	© dos \$3.00, dis 20 % S \$2.25, dis 65&10 % © dos \$3.75, dis 20 % © dos \$3.75, dis 40 % Fenn's		Winsted & Lane, Franters  Scovill Park  Hooks.  Bird Cage, Sargent's list	terndis 20@25 %	# Buck Bros
Ct. Valley Mfg. Codis 30cto 5   Hartwell's	No. 4, French	# dos \$2.25, dis 50 % Fenn's Cork : # dos \$0.75 net dos \$2.40, dis 10 % Frary's Paten by dos \$2.40, dis 45&10 % Wood and Me by dos \$2.40 & 40 & 40 & 40 & 40 & 40 & 40 & 40 &		Hoeks. Bird Cage, Sargent's list. Cotton Cotton (Humason & Beckley Belt, (new list) # C. Bench-Hotchkiss', \$5.00 # d Weston's, No. 1, \$10.00 MoGill's, \$82.00 # doz. Kinner's, \$6.32 per d Clothes Line, Hart's list. Celling. Hart's list. Celling. Hart's list. Coat and Hat, Hart's list. Wronght Staples and Glooks a Wronght Staples, Stanley's list. Whiffetree—Fatent. Hooks and Eyes.—Malleable I Brass. Horse Nails	Mfg. Co.)	" Middletown Tool Co. dis 10 % Ohio Tool Co. dis 20%; Spear & Jackson's. \$5.00 to £ gold Bandusky Tool Co. dis 10%; Colors Bandusky Tool Co. dis 10%; Colors Pilers and Rippers.
Morpe's Bit Stock Drill, List of May 15, 76dis 25 % L'Hommedieu's Ship Augersdis 15 % Watrons Ship Augersdis 15 % Awi Hafts.	Caps-Percussion, * 1000. Hicks & Goldmark's G. D. & S. R E. B. 1-10 Groun E. B. 1-10 Turne	Metallic Key. Cork Lined  70c, dis 6 % Enterprise (Sed65c, dis 5 %	Leather Lineddis 30824 dis 70824 sif Measuring)? doz. \$36.00, dis 20 tes	" McGill's, \$3.00 \( \) doz. \( \) \( \) Skinner's, \( \) \( \) \( \) Clothes Line, Hart's list. \( \) Sargent's list. \( \) Reading list.		Pilers and Nippers.     dis 334 h       tion's Patent     dis 25 h       Il's Patent Nippers, No. 1, \$15; No. 2, \$21 \$\pi\$ doz, dis 25 h       mason & Beckley Mig. Co.     dis 334 \$\pi\$       a Pilers.     dis 305 \$\pi\$       reka Pilers and Nippers.     dis 25 \$\pi\$       S. & W. Cast Steel.     dis 25 \$\pi\$       S. & W. Cast Steel.     dis 25 \$\pi\$       E. Control of time Nippers.     dis 25 \$\pi\$       Plumba and evels.     dis 25 \$\pi\$
A wi Haita.  5 wing, Braas Ferrule\$3.50 \( \pi \) gross—dis 35&10 \( \pi \)  Pag	" " D. W. P. 1-10 " " D. W. P. 1-10 Colt's 1-10  Ely's E. B. " Colt's 1-18. \$1.50	#1.40, dis 5 %  1.35, dis 5 %  1.700, dis 5 %  1.104, 65 @ 68c, gold  1.104, 81, 38c, gold  1.104, 81, 38c, gold  1.104, 81, 1.104, gold	85.00 to £ currency, dis 3: 	Ceiling Hart's list. Sargent's list. Reading list. Coat and Hat, Hart's list.	dis 70&10 % Eli dis 70&10 % Ru dis 45&10&2 % P.	2eka Pilers and Nippers
" Leather Top 12.00 " dis 35.210 \$\ Awls, Brad Sets, &c \$\pi\$ gross \$1.35—dis 25 \$\ \text{wing}, Best \$\pi\$ gross \$1.40—dis 10 \$\frac{3}{2}\$.	CardsHorse and Curry	dis 60%7 % Micholson dis 60%7 % Medden & Coo dis 331/40 % Jowitt's dis 25/40 % Riley Cor	1	Reading  " Reading  " Tassel (T. & S. Mfg. Co.)  Wrought Staples and Hooks a	's list	'lumbs and Levels.  ston's
## Patent Peg. ## Bross 60—dls 15 %  ## Patent Peg. ## Bross 6.0—dls 15 %  ## Bhouldered Brad. ## Bross #2,70—dls 25&10 %  ## Handled Brad. ## B.00 ## Bross—dls 25&10 %  ## Handled Bratch. ##,50 ## Bross—dls 25&10 %	Wool. Car Pasher.—"Giant". Carpet Stretchers. Cast Steel, Polished	#6.25 each, dis 20 % Butcher's.  Walter Spence Fisher's.	#7,00 @ 7,50 to £ go 4,50 to £ go er & Co.'s "Diamond" 4,50 to £ go 4,50 to £ go	"Staples, Stanley's lidd Wire Screw Hooks and Eyes. Id Grass and Bush." Whiffletree—Patent Hooks and Eyes, Malleshie I	8t	Iumbs and Levels. dis 70 % ston's d
Brad Rets, Aiken's	Bed Plate and Shallow Socket	02 \$2.00, dis 45.65 \$ Moss & Gambi H. Disston & S Limet & Co. (F Boynton's Ca. dis 40 \$ Fluting M	e	1 Augustia 20 % 200 20	7 0 9 10 San	ris' Patent. dis 602 to % ket Levels . dis 602 to % ket Levels . dis 602 to % ket Levels . dis 502 to % ost Hole and Tree Augers. per doz \$36.00, dis 20 % tcher Post Hole Augers. Per doz \$36.00, dis 20 % tcher Post Hole Augers. Per doz . dis 20 %
M. H. Jones & Co\$6.00 \$8.50 \$9.00 \$\psi\$ doz net.   Axles.   Common (Guy C. Hotchkiss, Field & Co.) \$\psi\$ 3.50 \$\text{Solid Collar, Case Hardened, Chilled Box \$\psi\$ 5.60 \$\text{Axle sireass.}\$-Frace" \$\psi\$ 5.60 \$Solid Collar, Case Hardened, Chilled Box \$\psi\$ 5.60 \$\text{Solid Collar, Case Hardened, Chilled Box \$\psi\$ 5	Casters. Bed. Ded. and Shallow Socket. Deep Socket. Cattle Leaders. Hotchkiss! Sons'. Humason, Beckley & Co.'s. Sargent's. Union Nut Co.	dis 10&10 \$ Knox, 4-inch I dis 60 \$ 8 " 8 " 8 " Rerless, 4-inc	1,50 each n	et "Finished, Polished or Blued" 3vc 20	dis Vau 20 % 61 10 260 250 240 230 Lee 6 7 8 9 10 Eur	ghan's Post Hole— n. \$23,60; 7, 8 and 9 in. \$25 per doz
Daingces.	Chain.  Frace, 0,4-1,-2. by the ca:  " 0,4-10-3. by the ca:  " 7-10-3. by the ca:	Eagle, 3½-inch sk, # pair 45 @ 46c sk, # pair 43 @ 44c sk, # pair 49 @ 50c	Roll. \$1.02/5 each no " \$2.12/5 each no " \$2.12/5 each no 7-inch Roll \$5.00 each, dis 33/5 8-inch Roll \$5.00 each, dis 33/5	tet Cortland	6 7 8 9 10 6c 24c 23c 22c 21c dis 15 8c 26c 25c 24c 23c 9 25 5 P 0 7 8 9 10	ratogs" Peeler and Slicer # dos 7.75 dis 10 %
D	" Coil. dis Halvanized Pump Chain. dis ack Chain, Iron. Brass.	8 40 @ 40x10 % gold   Crown	n., \$2.62½; (-111\$3.00; 8-in \$5.00 each ne 4½ in., \$3.50; 6 in., \$4.00 each ne 6 in., \$2.50 each ne 7	th. P. Pointed and 26  th. P. Pointed and 26  Finished	13 21 20 10 18 dis 13 21 20 19 18 20 % Pru 13 21 20 19 18c net Pru 12 20 10 18 17c net Jud	Pruning Hook " 11.50, dis 20 \$
Yankeedis 35&10 % B	llue	gross soe net Buffalo	1.50 each new	Wulson Pitid & Pined of	Hot Jap' 3 21 20 19 180 net Jap' 83 21 20 19 180 net Jap' 180 net Jap'	House and Tackie dis 66%&10% d Screw dis 60% d Screw dis 60% d Screw dis 60% to % d Side dis 60% to % d Side dis 60% to % d Side dis 60% d Side dis 60% d Side dis 60% d Side dis 60% d Side d
Crank, Taylor's. dis 252.10 \$  " Brook's. dis 5.5 b  " Cone's. dis 5.5 c  Cone's. dis 5.5 c  Lever, Sargent's, new list Dec., '75. dis 562.10 \$	Valte Crayons.  (Chiseris.  R. Harton Tool Co. (all kinds)	dis 20 %  dis 64&10 %  Hay. Manure a Prated A. A. Re	vstonePortable Forge Codis 45&10  nd Spading new list, dis 15  gers & Brodis 40&5 % casi	Mule Shoes	Reg \$3.62½   Hay	ning Shears # doz \$4.50 @ \$5.00 net ulleys # doz \$0.50 dis 40.5 dis 40.5 House and Tackie dis 60% fize of Sterew dis 50% fize of Sterew dis 60% fize
Taylor's Bronse or Plated Lover	" Hart Mg. Co " Merrill " Witherby Tool Co " Douglass" " Firmers, Crossman	dis 65&5&10&2 %dis 65&10 %dis 65&10 %dis 60&10 %dis 60&25&6 %dis 60x25&6	nd Spading new list, dis 15, 15 gers & Bro. dis 40%5 % cas Barton. dis 40%5 % cas College of the	Tce Awis, Chiseis, &c. American Ice Chisei National Novelty Ice Breakers.	Shader # doz #6.00 dis 45 %  # doz #6.25, dis 20 %  # doz #6.25 dis 20 %	de Rack. dis 50 % unches. or Drive . \$\psi \text{dos \$2.00}; 2.25; 2.50, \text{dis \$4.75} us. \$\psi \text{dos \$2.00}; 2.25; 2.50, \text{dis \$4.75} us. \$\psi \text{dos \$2.00}; \text{dos \$2.00}; \text{dis \$4.75} us. \$\text{dos \$2.00}; \text{dos \$3.00}; \text{dis \$4.75} us. \$\text{dos \$1.44}, \text{dis \$3.05}; \text{dis \$4.75} us. \$\psi \text{dos \$3.44}, \text{dis \$3.05}; \text{dis \$4.75} us. \$\psi \text{dos \$3.44}, \text{dis \$3.05}; \text{dis \$4.75} us. \$\psi \text{dos \$3.44}, \text{dis \$3.05}; \text{dis \$4.75} us. \$\psi \text{dos \$3.144}, \text{dis \$3.05}; \text{dis \$4.75} us. \$\psi \text{dos \$4.75}; \text{dos \$3.144}, \text{dis \$3.05}; \text{dis \$4.75} us. \$\psi \text{dos \$4.75}; \text{dos \$3.144}; do
	" Witherty Tool Co Douglass" Firmers, Crossman. " Buck Bros. " Hart Mfg. Co., extra " Merrill. " Witherby Tool Co " Louglass" Corner.	new list, dis 25%dis 65&5&10&2 %dis 70 %dis 70 %dis 70 %dis 70 %dis 70 %	#3.75 4.25 4.75 5.25 0.00 7.00 8.00 9.0	Wood Hood Plake Sargentia		Bemis'   dis 20\$10 %     Tinners'   dos \$1.44, dis 30 %     Silding Door Wrought Brass   # 18 38c dis 10 %
" Sargent's dis tokto 5 " Wentucky "Star" dis 20&10 5 " Bargent's dis 50&10 5 " Dodge's Genuine Kentucky, new list— Nos of Hog dis	"Corner oxtra. "Butcher's\$5.00 "Newbould's "Spear & Jackson's "Buck Bros (Shank)	@ \$5.25 to £ gold   Wire	ame ust as above	Pick in Handle  Tee Axes, Small Cast or Malle Kitchen Ice Tongs  Combination Ice Tools	# doz 3.00 net able # doz 1.25 net # doz 2.25 net # doz \$2.50, dis 30&10 %	Sliding Door Wrought Brass W B 38c dis to 5 iron, Painted W B 38c dis to 5 iron, Painted W foot oc. dis 6c 5 iron, Painted W foot oc. dis 75&10 5 iron iron, Painted W foot oc. dis 75&10 5 iron iron iron iron iron iron iron iron
" Texas	Ciminpo,	5,00 to £ gold Nall and Spike. "Bee " Gimlets	tent.	Retties.  Brass, 7 to 13 inches inclused Brass, larger than 13 inches	sive	for N. E. Hanger dis 70&10 % lakes, Steel dis 15 % lo 12 14 16 toeth. \$8,00 < 10 12 14 16 toeth. \$8,00 < 10 12 14 toeth. \$10 12 14 toeth.
Blacksmiths', Common	on, Providence Tool Co. s, wrf. Irol "Adjustable, Gray's." "Snow's." "Snow's." "Hammer's." "Stearns." "Cablnet, Sargent's." "Carriage Makers, Sargent's." "Cord and Tape (T. & S. Mig. Co.).	dis 20 %   Double Cut, Sha   dis 40 % 5 %	pardson's. dis 40 % ftwell's. dis 50 % s.	K.nives. Ames' Butcher Knives. Shoe Bread Moran's Shoe and Bread Knive Hay and Straw—'Wadsworth' Table and Pocket.	dis 20 % dis 15 % Gent dis 20 % Gent dis 20 % Bads	\$3.60 4.60 4.60 4.60 4.60 4.60 4.60 4.60 4
Bit Holders.	Capinet, Sargent's Capinet, Sargent's Cord and Tape (T. & S. Mig. Co.). Clips, Axle. orway or Best.	Tinned and Eng Family, Howe's L. F. &	meleddis 45 % "Eureka"dis 30 % C.'s " Handydis40 %	K nobs. Carriage (Jap'd 8oc. P gross)	See Cutiery Imite Hunt dis 50% of Chap dis 30% 10%	8'
Angular	Clips, Axle.  orway or Best.  perior  Cocksyes14 in., 28c.; 154 inch, 33c  Cocks, Brass.  cking, new list.	e.; 1% in., 27c, net Reading Hardw	are Codis 40&10&2 % " "Keystone"dis 45&10&2 %	Door, Mineral)	dis 10 % Baun dis 70 % Ri iron iscounts as Door Locks. In bu	der's
old pattern # gross, #10.50, dis 25 dis	obe, ain Bibbs, " e and Beer, new list	dia so \$   Maydole's	New List of Dec. 10th, 1878 dis 15 % race and Claw dis 10 % rece and Claw dis 10 % rece and Claw dis 20 % rece and Claw dis 20 % rece and Claw dis 20 % received for the second received received for the second received for	" Plated Purniture, Plain. " Wood Screws. Picture (T. & S. Mfg. Co.). Sargent's Shutter, Porcelain.	75c gross inch, dis 10 % N N N N N N N N N N N N N N N N N N	der's   dis 10 @ 15 %
Blocks.—Burr & Co. dis 25 5 Differential Pulley Blocks. dis 25 7 Penfield Block Works, Rope and Iron Strap'd. dis 40 5 Th	e and Boor, new list Coffee Millis- ard and Boor, crease Wilson's lsor's Pat. eerican (Enterprise Mfg. Co.). eer Boor Boos. ee Swift (Lane Bros.). Combined Dinner Pall and Ls Compasses, Dividers, &c. mpasses, lipers.	50, \$10.50, dis 25 \$\\ \text{Magnetic Tack.} \\ \text{Magnetic Tack.} \\ \text{Warner & Noble} \\ \text{Verkes & Plumi} \\ \text{Mis 25 \$\text{Verkes & Plumi} \\ \text{Mis 25 \$\text{Verkes & Plumi} \\ \text{Mis 25 \$\text{Verkes & Plumi} \\ \text{Mis 26 \$\text{Verkes & Plumi} \\ \text{Mis 27 \$\text{Verkes & Plumi} \\ Mis 27		Shutter, Porcelain.  Ladies. Melting—Hart's Sargent's	dis 60% 10 % Stair.  dis 55% 10 % Record of Stair.  dis 50% 10 % Record of Sarre	dis sokio 5 imerican Patent dis sokio 5 imerican Patent dis 46% llers. Door Sorgant's list dis sokiokio 5
	Combined Dinner Pail and La Tous \$15.00 Compasses, Dividers, &c. mpasses	Providence Tool	and Leg froms.  Co.'s Hand Cuffs, \$15.00 V dox } dis 10 %  Leg froms, \$25 V doz } dis 25 %  oor or Thumb Latches—	"Reading. Monroe's Patent. Lanterns. Tubular	dis 50810 %  dis 15810 %  dis 15810 %  Novel  Acme  inco: No. 1, \$11.50   net	American Patent. dis 40% liers. dis 70% care liers. dis 70% care liers. dis 70% care liers. dis 70% care liers. dis 50% care l
Cast fron Barrel, Shutter, &c	Illpers. viders. mis & Call Co.'s Dividers. mis & Call Co.'s Compasses & Callipei of Station of Compasses & Callipei of Station of Callipei of Station of Callipei of Station of College of Callipei o	dis 55 %  dis 65 %  Nos. o  Per dos. 80.8  Roggin's Latches  Roggin's Latches	1.00 1.18 1 35 1.50dls 65&10 %	PeerlessNo 5, Brady's Patent	dis 25 % 4 doz \$11.75, dis 10&10 % 4 dis 10&20 % 4 dis 10&20 % 4	75 inch w m 11% c m 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Bush's Lever and Chain Bolts	celsior. ler's Patent. copers' Tools. ddey's. k. Barton Tool Co.	dis 50 % Jap'd Store Door no Plate, 75c  dis 15 @ 20 % dis 20 % Wrought Chest	1,00   1,18   15, 1,00   1,18   25, 1,00   1,20   23, 23, 24, 25	Yankee. De Beque. Police. Small,87.50; Med.,89.00; Convex Reflector. Lemon Squeezers.	Large, \$12.00, dis 10&10 % Sisal.  Large, \$12.00, dis 20&10 % " \$3.60 % doz, dis 10 % "	
" Plated Knob & Slide Flusn " dis 10&10 % Cerriage and Tire, Common	rkscrew s.—Humason & B rn Knives and Cutters.—Eradi row Bars. st Steel	ey's dis 10 % Elush Chest Lifting Saw and Plane Boynton's X Cut	dis 60&10 %   dis 60&10 %   dis 60&10 %   dis 60&10 %   dis 50&10 %   dis 75&10 %   dis 75&10 %   dis 20 %	Porcelain Lined Eureka, Tinned. Duniap's Improved. Sammis'No. 1, \$7.50; No. 2, \$	# doz \$4.00 net Chaple	tes. Boxwood Ivory. In 8
"Bak.Flush, Comm'n, Stanley's, dis 20c105 "Plated Knob & Slide Flush dis 10ck105 "Plated Knob & Slide Flush dis 10ck105 "Array Iron. dis 75k5 c cash "Reyway Iron. did 18t dis 70k c c c c c c c c c c c c c c c c c c c	rn Knives and Cutters.—Bradi row Bars.  t Steel.  n, Steel Points.  rucibles.—Gautier & Co.  urling froms. & C.  ½ tin. \$1.80, 2.00, 2.40.  filing longs	Hammer and Hadrad Awl.  dis 10 g bit \$3.65, dis 10 g	Goz 10210 5   Goz 10210 1	Yankee De Beque Police. Small, \$7.50; Med., \$6,00; Convex Reflector. Lemon Squeezers, Porcelain Lined. Eureka, Tinned. Sammis'No., \$7.50; No. 2, \$7 Townsend's Fatent. Little Chalk. Nos. 0, 1, 2, 5, \$7.0. Mason's Linen Wire Clothes, Gaivanized Locks and Laptches.	dis 25 \$ Steph dis 50 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	ens
Star (Phila)	urry Combs. ry Comb Mfg. Co. bb's (List of No. 240, \$1) chklas'& Kellogg's, Iron & Brass, old	08 7.50, dis 20 % Apple "dis 25&10 % Socket "dis 33 & & 10 % Framing File control 20 %	large,	Wire Clothes. Galvanized Locks and Latches. Jabinet—Gaylord } "Eagle"	each 30 @ 40c net Entern Mrs. P Combi	### 17
Plow   dis 50 %   Rub	chkiss' Novelty	0,00, dis 20&10 % 0,00, dis 20&10 % dis 15 % Patent Auger, Iv	large   7.00   assorted   3.50   dis   2.50   colors   5.50	" Barnes & Deitz. " Bridgeport Lock Co Trunk Langstroth & Crane's List Jan. 1	dis 2582 % Baedel dis 25 % '77- dis 40% to %	med Fluter and Sad Ironper doz \$15.00, dls 15 % d Paper.   # d Paper.  # 2, 2½ & 3, 4.75 % ream   15 % d Paper.   # Assorted 4.25 % ream   25 % ream
First quality, no Augers 9,50 second qu ty no Augers 9,00 second qu ty no Augers 9,50 second qu ty no Augers 9,50 second qu ty no Augers 9,50 net Nau	ite Enamel utlery. iden Cutlery Co. (Table). Miller Bro.'s Cutlery Co. mason & Beckley, Pocket gatuck Cutlery Co. r York Knife Co. (Pocket). (Table).	dis 25 dis 25 dis 25 dis 25 dis 26 di	7811'8	Flat Key. Barnes & Deitz, Flat Key. Yale Lock Co., Flat Key. Shepardson's, Flat Key.		Emery . \( \psi \) ream \( \psi_0.50 \) \( \psi \) 11.40 \\   ngland, same list as B. & A. Flint dla 1\( \psi_0.20 \) \\   dla 20\& 5 \) \( \psi \) \( \psi_0.20 \) \(
Bow Pins. Emb	PORROGA STRANGE CONTRACTOR CONTRA	dis 20 5 dis 30 5 Harness Sna	tion)	Plate F. Many's "Extension Cylinder DUOR LOCKS, &	dis 331-25-25 Patent "\$10.50 \$\forall \text{dos, net} \\ \text{dis 60&10&2} \$\forall \text{dis 60&10&2} \$\foral	OR.
Humason, Beckley & Co.'s	soor Berings. ey's Rod. # dos \$: ''s Rod. # dos \$:	Judd's	t of 13g changed to \$14.00, dis 50 % 14.00, dis 50 % 14.00, dis 50 % 14.00, dis 50 % 14.00, dis 50 %	Norwalk. Norwich. Russell & Erwin. Mallory, Wheeler & Co	dis soltioliz % Steel R	1 ADCIMINA
Wisson sife.         Co.         dis 10 %         Gem           Sporfond's Patent.         dis 502 %         No           Noble sPatent.         dis 502 %         No           Ives "Cantennial"         dis 50 %         No	(Coil)— . 1. Large, Japanned	\$3.50 dis to \$ "German"	dis bok 10 %	Reading Hardware Co Trenton Continental Padlocks—Russell & Erwin Mallory, Wneeler & Co Wm. Wilcox & Co American Lock Mig. (	Walker Hammer Country	No. 1, \$10.00; No. 2, \$5.00 per gross (18 40045 %) on's
O. B. Backus. dis coëro 5  Spoffond's Patent. dis 508.5  Spoffond's Patent. dis 608.5  No. Spoffond's Patent. dis 608.5  Brackets. Spoff (Sargent's). dis 608.6  Brackets. dis 608.6  Brackets. dis 608.6  Brackets. dis 608.6  Brackets. dis 608.6  Spoff D. Spoffond dis 608.6  Spoffond dis 60	ailenge (Coil)— Nos. 9 7 7 8 2 2 5 0 0 1	3.50 5.00 4.50 7.00 dis 30 % Singling, Nos. 1 Lathing, Nos. 1 Hunt's.	2 3	" Wm. Wilcox & Co. " " American Lock Mig. ( " Romer's " Conestoga. " " J. H. Mc Williams. " Barnes & Dietz	00dis 33½ % Sash dis 50 % Sau Miles	Por Knob Jap C., \$\text{q}\$ to \$2.00 met   \text{NickelPlated.} \text{\pi}\$ gro \$2.00 met   \text{NickelPlated.} \text{\pi}\$ gro \$2.00 met   \text{NickelPlated.} \text{\pi}\$ gro \$2.00 met   No constitutions of \$1.00 met   \text{No constitutions of \$1.0
Rargent's dis 665-kio R Premi Agothkins' low list dis 10 S Juma'ou, Bockley & Co.'s dis 60 Nic Union Nut Co. dis 60 S Start Matter.	nium (Coil)— Nos. 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Shingling, Nos. 1 Claw, Nos. 1 Lathing, Nos. 1 Hurd's	2 3	Barnes & Dietz.  Penn Lock Works  Mallets.—Hickory and Lignur  Ment Cutters.  Dixon's (P. S. & W.) Nos. 1 2  # doz \$14.00 17	dis 30 % Perry dis 30 % Draw C nvitedis 10&10 % Enterpr	I-
### ### ### ### ### ### ### ### ### ##	5, Screen Door Size	Shingling, Nos. 1 Claw, Nos. 1 Lathing, Nos. 1 Simmon's.	35 % don 6 dia 35 %	Dixon's (P. S. & W.) Nos. 1 2 2 (Miles' Challenge	00 19.0030.00—di 25 Disston 30.00 40.00—dis 30 %	Circular dia 30 % Mill. dia 90 % Cross Cut. dis 20 % Hand, Panel, Rip, &c. dis 20 %
Fast Joint, Narrow	1's Lever No. 1, \$1; 2, \$1.50; 3, \$224.	Aut 30 1 crep 30 to 1 parrend system of		Black Bons and Con tros		caco's Circulars dis 25 %
Parliament Buttsdis Cowe	1's Lever. No. 1, \$1; 2, \$1.50; 3, \$2; 4, 1's Boss % dos \$4. delphis 5 in., \$5.00; 8 in. er's Concealed 85.00; No. 2, \$15.00; er. complete \$5.00; No. 2, \$15.00; No. 2	20, dis 40¢ 10 % Claw, Nos. 87.00, dis 35 % Lathing, Nos. 1 hroad, Nos. 1 hroad, Nos. 5 does \$1.00, not. 5 Colling.	1 2 3 4 dos 9.00 9.50 9.00 1 2 3 4 dos 8.00 8.50 9.00 1 2 3 4 dos 8.00 8.50 9.00 1 2 3 4 4 dos 9.00 10.00 12.00 14.00 6 7 8 4 dos 10.00 18.00 20.00 22.00 discos 6 7 8 4 dos 10.00 18.00 20.00 22.00	Woodruff's (P. S. & W.) Nos Woods. Hales' Nos II 12	13.00 30.00—dis 40 % H. W. P \$15.00 18.00—dis 40 % 13 51.00—dis 508 a # E. M. Bo	Mill, Gang and Mulay
Parliament Butts. dis Mayer's Binges. dis Mayer's Binges. dis DBHLEED AND VIRED. dis School Broad. dis 5ckto 5 D. R. Harri Mayer dis Cover dis Broad. Japanned. dis Lear John Mayer dis	1's Lever. No. 1, \$1; 2, \$1.50; 5, \$25; 6, 1's Boss. % doss, % doss, delphis. 5 in. \$5.00; 8 in. er's Concealed. 11's	20, dis socio (Claw). Nos. 16, 27, 20, dis socio (Claw). Nos. 18, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20	6 7 8¥ doz 16.00 18.00 20.00 22.00	Hales'Nos. II 12  # doz\$33.00 40.08  Draw CutNos. 5 2 6  Each\$50.00 75.00 80.00  American	13.00 30.00—dis 40 % H. W. P. 100 160 180.00 dis 40 % 13	"a Circular
Jananed dis 70210 % Noble with Acoras dis 604620 % Adjust Human dis 604620 % Adjust Human dis 504620 % Withe	panned	dis 35 5 Lath, Nos. 1 Half Hatchets. No. 1 Lath, Nos. 1 Half Hatchets. No. 2 Control of the state of the stat	2 3 - 4 dos 16.00 18.00 20.00 20.0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Hales'. Nos. II 22 pt doz. \$3.00 praw Cut Nos. 52 Each \$5.00 American. Nos. 1 2 Each \$5.00 American. Sco 7.00 Mos 1 2 3 Each \$5.00 Each \$5	4 B 5 Wheeler Christian Color Color Christian	Mill, Gang and Mulay dis 2% Cross Cut, Wood, Hand, &c. dis 20% Synton's Lightning, Cross Cuts dis 20% S One-Man, all lengths dis 20% S Buok Sawe (X Bar) & dos \$1.5, dis 40% S Buok Sawe (X Bar) & dos \$1.5, dis 40% S Pruning dis 40% S Pruning dis 20% Cross Cut dis 25% Pruning dis 20% Cross Cut dis 25% Cross Cut dis 25% Con's Butcher and Kitchen dis 20% Framed Wood—  5. 101 koz 103 104 105 103.810.00 8, 10.00 7.50 6.25 net Framed Frames \$4 dos \$1.35, dis 15% S S S S S S S S S S S S S S S S S S S

January 9, 1879.	
Saw Sets.   Boynton's Patent   W dos \$4,25 ned	Prot
Stiliman's Genuine	W
Nash's Hotchkiss No. 1, \$8.50; No. 2, \$5.50, dis zo&ro f Hammer, Hotchkiss \$5.50, dis to f Bernis & Call' Co.'s New Pat dis 40 f	App
Hemis & Call Co.'s New Pat. Lever	App W Prot We Bras
Disston's. dis 20 S Scales. Adordies do dos \$36, dis 4082 S Hatch, Counter. B dos \$76, dis 4082 S	Brig
Union Platform \$6.00, dis 50 5 Turnbull's Market dis 20 6 Fairbanks' dis 20 65 5	Copy
Howe's. dis 20%; \$\frac{1}{2}\$ Chatillon's Grocers' dis 40 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Tinn Cast Tinn Ann
Favorite dis 25 g "Turnbull's dis 25 g Scale Beams, Chatillon's list dis 25 g	Galv
## Sargent's list. ## dis fokto	Fend
Defiance Box and Ship die 25&10 % Foot dis boltto % Ship (common) per dos \$3.00 net	Japa Galv Stae
Screw Drivers.  Qart, Bliven & Mead, new list	Clot W Ame
Disston'sdis 50 \$ Disston's Patent Excelsiordis 60 \$ Buck Brosdis 24, \$	Colli
Stanley Rule & Level Cos., Hlack Handling dis 35&10 % Varnished Hile dis 45&10 % Sargent & Co.'s	Coes
Sargent & Co.'s. Varnisaed R'19-dis 45&10 & Screws. Idis fook to \$ Screws. Idis fook to \$ Screws. Idis fook to \$ Flat H'd Iron. dis 60 \$ Round Head Iron. dis 45 \$ Round Head Iron. dis 45 \$ Round Head Brass. dis 45 \$ Round Head Brass. dis 45 \$ Round Head Brass. dis 50 \$ Japanned. is 67 Flais Screws. dis 50 \$ Japanned. is 67 Flais Screws. dis 50 \$ Lag or Covanon Coach. dis 70 \$ Lag or Covanon Coach. dis 70 \$ Edd. dis 10 \$ Machine, Flat Head, Iron, Am. Screw Co. dis 25 \$ Machine, Flat Head, Iron, Am. Screw Co. dis 25 \$ Machine, Flat Head, Iron, dis 60 \$ Machine, Flat Head,	Gira Lind Taft Davi
Brass and Silver Capped. dis 40 % Japanned, ifst of Plain Screws. dis 55 % Lag or Counton Coach. dis 70 % Coache Counton Coach. dis 70 % Coache Counton Coach. dis 70 % Coache Coache Capped Capped Coache Capped Coache Capped Coache Capped Coache Capped Ca	Bem
Coach Patent Gimlet Point. dis 40 @ 45 % Bed	The W
Bench, Iron dis 66&10 \$  "Wood, Beach \$\ 0.00 \ \ 0.00 \	Crow
Hand	Eure
Sack (Wilson's).   dis 20 %   Sash (F. & S. Mig. Co.).   dis 25 %   Shears and Scienars.	Exec
Sash 67. & S. Mrg. Co.)   dls 2 \( \)   Shears and Scissers.   dls 6 \( \)   Cast Steel.   dls 5 \( \)   G 5 \( \)   Seymour's Straight Trimmers.   dls 5 \( \)   Seymour's Straight Trimmers.   dls 6 \( \)   Scissors.   dls 6 \( \)   Pruning.   dls 2 \( \)   Pruning.   dls 6 \( \)   Shears.   dls 6 \( \)   G 5 \( \)   Shears.   dls 6 \( \)   G 5 \( \)   Shears.   dls 6 \( \)   Shears.	Peer
Pruning. Scissors. See Pruning Hooks and Shears. Barnard's Lamp Trimmers. \$\pi\$ doz \$\pi_2,7\$ Tinners'. dis 20 \$	
Heinisch Trimmers and Scissors. dis 65 % R. H. S. dis 65 % Sheaves. M. W. Co. Mar. discreteles	Com
Heinisch Trimmers and Scissors	
"Russell's Anti-Friction	IRO
Moore's Anti-Friction (Hanging) dis 45 % Philadelphia Hanging dis 40% 46% % Shovels and Spades.	of t per Wr Rai
Ames, New list, Jan. 1, '78. dls 20 & S & Kimball Shovei Co. dis 20 @ 20% 5 & Oid Colony. dis 30 @ 30 %	Pig
Dunning's Shovels and Scoops. dls 30&7% 5 Rowland's "Regular," new list dls 60 5 "Patent, new list dls 40 65 5	Egl Coi
Oxford Patent, new list	Rai Iro Ste
Polished Steel	Sera Wr
Less than a case	Comi
Iron.	Refin
Speake Trimmers	Rods Band Swed
Douglass	COP per whi
Britannia dis 60 % Derby Silver Ce dis 40 & 50 & 50 & 50 & 50 & 50 & 50 & 50 &	Amer
Rogers & Bro. A I         dis 40% 5 % Cash           Reed & Barton         dis 40% 5 %           Hall & Elton         dis 40% 5 %           Holmes, Booth & Haydens         dis 40% 5 %	Brazi Brazi ove
German Silver. dis 3025 5 Diamond Steel (L. Boardman's Sons). dis 3025 5 Tin (P. S. & W.), Teas. \$1.50 \text{ gross, net}  "" Tables \$2.50 \text{ gross, net}	Brazi Circle
Square Frames, Round Cornered, 9 case dis 50% to \$  Spoke Shaves dis 50% to \$  Defiance Metallic new list, dis 25% to \$  Fron dis 40% to \$  Wood dis 30 \$  Balley's dis 20% to \$  Spoke Trimmers \$  Bonney's \$  Stearn's \$	Segm Locor Sheat Bolt
Stone. #B 5c discovers	Coppe No to exc
Slips	14X48, 14X48, For
	O'NE
Lightning   Screw Plate   dis. 10   Stone   Hindostan Stone	12 oz.
Lake Superior (Boyd & Chase). \$\psi\$ b, (dis 10 \cdot 5 \cdot	
Silps	12 OZ.
Gold Medai. # gross \$5.00, dis 25 %  "Mirror" # gross \$6.00, dis 5 %  Rubv # gross \$3.75, net  Rising Sun # gross \$5.75, net	Nos. 1
Steel dis 40 %; full cases, dis 50&10 %) 2 % Iron dis 40 %; full cases, dis 50&10 %) 2 %	Galva
Nickel Plated	Paton
Winterbottom's Try and Mitre. dis 20&10 % Balley's Try Squares and T Bevels. dis 25&10 % Tacks, Brads, &c.	Paten Russis Ameri
Shoe Nalls, (new list). dis 10 % Double-Pointed Tacks dis 40&5 % Tap Borers.	Brown
Common and Ring.   dis 20&10 5	Cash tity th
American	All No
Tin Case	ao in All No 30 in Mc. F
All Iron. # doz \$10.50, dis 40&5 % Nashua Lock Co.'s # doz \$18.00, dis 50 % Toe Calks,—Winsted # b.c. dis 10 %	clusi All Bro Sheets and
Truners' Tools and Machines, Machines (P. S. & W.)	Printe
Game, Newhouse	Circul
Tools (P. S. & W.)	40 W
" Cage " # doz \$2.50, dis 10 %  Patent Self Setting. # doz holes, 25c, net  Catch-em-alive. # doz \$2.75, dis 10 %	Plater
Trowels. Lothrops Brick and Plastering	Metal i
Peace's Plastering. dis 20 % Peace's Plastering. dis 20 % Clement & Maynard's. dis 20 % Rose's Brick.	Metal, b ad Metal, adva
Rat. "Decoy". per dos \$10.00, dis 10 % Trewels. dis 10 % Lothrops Brick and Plastering. dis 15 % Lothrops Brick and Plastering. dis 15 % Disston's Brick and Plastering. dis 20 % Cloment & Maynard's dis 20 % Cloment & Ma	Metal, No. 2 Metal,
Butter and Cheese	B ad Metal, Any of 7c. ¥
Gardon	4 Der
Peter Wrights 15%C, gold Parallel, Parker's dis 20 5 Wilson's dis 45 @ 50 5	10 15
Merril's dis 25 %  Sargent's dis 60&10 %  Trenton dis 60&10 %	more t
Backus and Union dis 25 5 Fisher & Norris dis 25 5 Stevens' dis 25 5	12 in., 8 36, incl All G 500 W 1
"Family." List adjustable. dis 2527 % Saw Pilers, Bonney's. # dos \$24.00, dis 2021 % Stearn's. dis 2021 %	Gern Gern 12 in. M and Ch
DI	No.0 to No.21
Control of the contro	

	THE IRON: AG
Ventilators.  Protective (upper) per foot, \$1.00	NO.22. 37 95 44 NO.23 33 37 45 NO.24 45 NO.24 46 42 46 NO.25 47 15 NO.26 47 15 NO.26 47 15 NO.26 47 NO.26 47 NO.26 47 NO.26 47 NO.27 47 NO.26 47 NO
Weather Strips:   rotective Ventilator Co. s	No.30.
inned, Nos. o to 18. market list, dis 33 @ 37% ast Steel. Nos. o to 18. dis 45% @ 47% at Steel. dis 25 @ 37% and Steel. dis 25 @ 47% at S	Transparence and target not less than 2 feet lengths, saightened and cut, smaller than No. 8, and not less than 2 feet lengths, 36c.  Wire straightened and cut, smaller than No. 8, and not less than 2 feet lengths, special rates Twelve cents per be extra for spooling on 1 B spools Twelve cents per be extra for spools Twelve cents per be extra
"Staples, Galvanised \$\pi\$ 0/6 & to tubs Steel Wire \$7.00 to \$ gold spanned Barb Fence \$7.00 to \$ gold spanned Barb Fence \$\pi\$ 10 to \$1 \text{ \$10}\$ \$\text{ \$10}\$ \$	Gliding.  Gliding.  Turnings, Filings and Chips half the price of Scrap.  Turnings, Filings and Chips half the price of Scrap.  Terms—Net cash. Interest to be added after thirty than the control of the
aft's Patterndis 75&to	All Mandrel Drawn Tubes, 5 cents advance on List
Diagonal	to No. 20. Tubing Sawed or Cut z to 4 feet long, 2 cents advance on List. Add to 2 cents id cent for each additional cutting all Mandrel Drawn Tubes under ½ in., 25 cents per pound advance.  Plain. ZINC TUBING,—net. 2 Fancy 2
"No. 2½"	Section and Extra Patterns   3
eeriess, No. 2	English, Sootch and Extra Patterns Fancy Tubing to No. 20 cents advance on List.  Add to 2 cents is cent for each additional cutting under 2 feet.  All Mandrel Drawn Tubes under ½ in., 25 cents per pound advance.  Plain. 2 EINC TUBING.—net.  Plain. 2 Fancy. 3 Sootch and Extra Patterns. 3  4 Per cent. 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
RON.—DUTY: Bars, 1 to 1½c. ? B; Sheet, Band Hoop and Scroll, 1½ to 1½c. ? B; provided, that non- of the above iron shall pay a less rate of duty than 3; per cent. Pig. § 7 * ton; Polished Sheet, 3c. ? B Wrought Scrap, § 8 * ton; Cast Scrap, § 0 per ton	Homogeneous
Kaliroad 70c. w 100 Bs. Boller and Plate, 1/5c. w B.    Fundry No. 1	Tool, extra fine
### Iren, from Store.    to 2 in. round and square	Blister, 1st quality. \$\ \mathbf{p}\$ 130 German Steel, Best. \$\ \mathbf{p}\$ 110 and quality. \$\ \mathbf{p}\$ 100 3d quality. \$\ \mathbf{p}\$ 1246 4. \$\ \mathbf{q}\$ 1246 4. \$\ \mathbf{q}\$ 1246 4. \$\ \mathbf{q}\$ 1246 50 144 \$
wedsh Iron  of Physics  of Phy	Pipe and Sheeft, 29kC ¥ B.  American. 64 44kC Bar . 9c. dia 10 8 Pipe . 55c. dia 10 8 Pipe . 55c. dia 10 8 Tin Lined Pipe . 52c. dia 10 8 Sheet . Drop 54gc, Bluck, 79k, dia 10 8 Shot . BABBITT METAL.
asiers' Copper, ordinary sizes, over 16 0x, \$\pi\$ sq. ft. asiers' Copper, ordinary sizes, 16 0x, and over 12 0x, \$\pi\$ sq. ft. \$\pi\$ b 27c asiers Copper, 10 0x and 12 0x, \$\pi\$ sq. ft. \$\pi\$ b 27c asiers Copper, 10 0x and 12 0x, \$\pi\$ sq. ft. \$\pi\$ b 30c rices less than \$\pi\$ sq. in. In diameter \$\pi\$ b 30c rices \$\pi\$ in. diameter and over. \$\pi\$ b 31c gment and Pattern Sheets. \$\pi\$ b 26c comotive Fire Box Sheets. \$\pi\$ b 26c eathing Copper, over 12 0x. \$\pi\$ sq. ft. \$\pi\$ b 25c tt Copper. \$\pi\$ b 25c	12X12 Prime Charcoal
ppor Bottoms.  No Copper is Sheathing except 14X45 inches and not exceed 34 oz. to the eq. ft.  Exceed 34 oz. to the eq. ft.  TINININA.  # sheet 6c  (48, less than case.  "Fallet be above amount."  "Fall # Farshy Flantsheld COPPER.—Dis 7/6 of 5.  And 16 oz. and heavier. # B 340  oz. and lighter# B 340  **Bottom Sizes.**  **Bott	IX 10x14   Prime Charceal
and 16 os. and heavier. \$\pi\$ 350 \$\pi\$ the case. \$\pi\$ 350 (And all sizes not over 20 in. wide.)  30xbo.  and 16 os. and heavier. \$\pi\$ 360 \$\pi\$ 30xbo.  Sheet 1 ron.  Common R. G.  American. American.	TERME PLATE.  Prime Char. 2d quat. Coke.  IC 14X27 \$5.50 5.25 5.20 \$5.25 \$10.00 \$6.12\frac{1}{2}\$  IX 14X29 \$1.40 11.00 \$6.11.25 10.00 \$6.10.50 \$10.
8. 10 to 20.	Bergon Fort from LehighOre
nerican Cold Rotted	Paper Stock, Old Metals, &c   Canvas linen.
Nos. not thinner than to No. 28, wider than 2 in., of wider than 14 in. 250 Nos. to No. 25 Nos. to No. 25 Nos. to No. 25 No.	######################################
and rengths under 30 in., in width wider than 2 in. 326 etes wider than 30 in. and under 40 in	Rentucky bale rope
ters' or Gold Metal, Sc. \( \) \( \) b more than High Brass.  (In Bars	" Light 134 6 154
All in width 1/4 in. to 3/4 inclusive, not thinner than 0. 25, 2c. * B advance.  all in width 1/4 in. to 1/4 thinner than No. 25, 2c. * S advance.  all 1/4 in. in width and less, toc. * B advance.  of the above widths cut to particular lengths, add  . * B.  GERMAN SILVEE MARKET METAL AND WIRE.  MARKET MAKET METAL. WIFE.	Book Stock
nclusive	Pewter, No. 1
li German Silver thinner than No. 36 is Platers, at	Black Lamp, Coach Painters. \$ 200 Ordinary. 60 "Ivory Drop, fair. 120 150 "Ivory Drop, fair. 200 Black Paint, in oil. kegs, so asst'd cans, ite

	HE IRON AG	E
	No.22 31 95 43 No.23 35 No.24 45 No.26 47 51 No.26 47 No.26 17 No.	1
-	No 4	
	Brass Rods, No. 5 and larger not less than 2 feet lengths, 35c. Wire straightened and cut, smaller than No. 8, and not less than 2 feet lengths, 36c. Wire and Rods less than 2 feet lengths, special rates. Twelve cents per b extra for spooling on 1 B spools. Common Plain Brass Pall Ears	I I S
	High Brass Scrap	1
	Plain to No. sc inclusive, above 1/2 in. to 3 in	3
	All Mandrel Drawn Tubes, 5 cents advance on List Prices. Fancy Tubing to No. 20. 450 English, Scotch and Extra Patterns Fancy Tubing to No. 20	1
	Add to 2 cents 1/2 cent for each additional cutting under 2 feet.  All Mandrel Drawn Tubes under 1/2 in., 25 cents per pound advance.  ZINC TUBING.—net.  Plain	1
	GERMAN SILVER TUBING.—dis to 2  OFFICE AND SILVER TUBING.  OFFICE AND SILVER TUBING.  OFFICE AND SILVER TUBING.  OFFICE AND SILVER TUBING.—dis to 2  OFFICE AND SILVER TUBING.  OFFICE AND SILVER TUBING.—dis to 2  OFFICE AND SILVER TUBING.—dis to 2  OFFICE AND SILVER TUBING.—dis to 2  OFFICE AND SILVER TUBING.—dis tubing silver and silver a	NAME
	Tool	
	Tool, extra fine	
	1.EAD.—DUTT: Pig \$2 ♥ 100 bs; old Lead, 1½c b ♥ Pipe and Sheet, ½c ♥ b. Americau 6, 4½c Bar 9, 0dis 10 \$ Pipe 50. dis 10 \$ Pipe 1, 2c, dis 10 \$ Sheet. 0c, dis 10 \$ Sheet. 0c, dis 10 \$ Sheet. 0c, dis 10 \$	-
	N. P. U. BASSITY METAL.  N. P. U. BASSITY METAL.  N. D. C. LIO: C. D. C. B.	-
	IC 10x14   2xx12   Prime Charcoal	7
	COKE TIN PLATE. Best. 2d quality. Ordinary.	6
1	C   12412     \$5.75   5.50   5.25   C   14800   TERME FLATE.     Prime Chara.   2d   qual.   Coke.     C   14379.   \$5.50   5.24   \$.00   5.12\square.     C   14379.   \$6.50   \$6.70	9
	Paper Stock, Old Metals, &c	5
٦	Canvas linen (Dealer's Selling Price.)  White cotton, new	**
SISCIENT	White liner rags, No. 1	G
í	White collar cuttings, all paper	_
Ņ	oft "No. 1	T

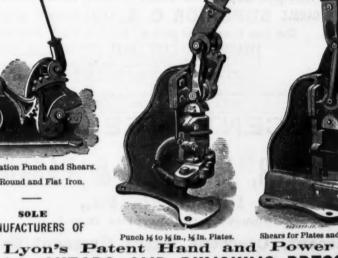
ZINCDUTY: Pig or Block, 1.50 \( \psi \) 100 hs. Sheet, 246 \( \psi \) b.
Shoet, Cask
Paper Stock, Old Metals, &c
(Dealer's Selling Price.)
Canvas linen
No. 2
No. 2
Mixed woolens
Gunny bagging3% @
Into Butts a sla
Kentucky bagging 5 6 Waste paper and scraps 6 1 Rope cuttings 136 6 3
Grass rope
White collar cuttings, all paper
Hard White Shavings, No. 1
Soft " No. I 3 @
Mixed Shavings, part white
Hard White Shavings, No. 1. 34 G Soft No. 1. 34 G Mixed Shavings, No. 2. 34 G Mixed Shavings, No. 2. 34 G Mixed Shavings, No. 2. 34 G Mixed Shavings, Dart white. 34 G Imperfections, No. 2, bost folded sheets. 34 G No. 1. Heavy Stock Stock No. 1. Heavy Stock Stock No. 2. Heavy Stock Stock No. 34 G No. 2. Heavy Stock No. 34 G No. 3. Heavy Stock No. 34 G No. 3. Heavy Stock No. 34 G No. 3. Heavy Stock No. 3. Heav
" Heavy
" Light 134 @ 134 @ 134
Prints
Bogus Manilas and Hardwares
Newspapers Prints Pure Manilas Bogus Manilas and Hardwares Commons Binders' Board Cuttings
Woolen Tailor Clips
Satinet w 478
Copper, heavy
Yeliow Metai 10 @
Heavy Composition
Tea Lead
Pewter, No 1
Wrought Ironper ton \$17.00 Machinery Ironper ton 12.00
Tight Iron Der ton 10.00
Stove Plateper ton 10.00 Grate Barsper ton 4.00

Blue Obinese dry	Asph atum Bensine Chaik  "Block Dryer, Patent, Am'n Frostings. Glae, White Glasters Points, Zinc. Gum, Copal.  "Damar.  "Shellac, English.  "Affection of Gark. Miperal Wool. Pumle Stone, selected Lump powdered. Putty, in bladders.  "in bulk. Rotten Stone, soft, English. Spirits Turpentine. Whiting Spanish.  Glas	ies.			
Brown, Spanish	Benzine			P g	al, 160
Carmine, 40combination price	" Block	*******		******	
Green, Chrome	Dryer, Patent, Am'n	ass't	cans,	10/40; 1	keg, 90
Paris good ase; best, 300	Glue, White		******	38	@ 440
Iron Paint, Bright Red	Glariers' Points, Zinc	*******	******		80
" Red P D 20	Gum, Copal	*******	******	*****	360
" Brown # 1340	" Damar	*******	******	******	250
Ground in Oil Bright Red & & side	snellac, English	*******	******	******	250
" Red 10 10 50	Litharge, Englisgh		*******	9	e gola
" Brown # 1 4160	Mineral Wool	*******		B 134	@ Ilio
Mineral Points	Pumic Stone, selected Lump	G		**** ***	4 (# 00
Orange Mineral120	Putty, in bladders	*******	******		240
Red Lead, American60	" in bulk	******	*****	******	20
Wengtian (N. C.) dry	Rotten Stone, soft, English.	******	******	******	80
in oil asst'd cans, He: kegs, 8c	Whiting Spanish	******	******	******	Me
" Indian dry 0@ 120	Glas				,
Rose Pink	FRENCH WIND				
" Burnt	Prices current per box of 50 feet.				
Rose Pink   10 68 130   130	Single Thick.—discount 60&5 %			UG	
" in oil	SIZES.	rst.	ad.	ad.	4th
" in oil	DATE BO.	Ame.	alla	34.	4000
Vermillion, Chinese goc, gold	6 X 8 to 10 X 15	\$ 7.40	\$ 6.75	\$ 6.25	\$ 5.75
English	11 X 14 to 16 X 24	8.50	7-75	7.25	0.50
" American Common	13 X 22 to 20 X 30	10.75	10.75	0.74	4.4
White Lead, American, pure dry8c	26 X 28 to 24 X 36	13.00	11.50	9.75	
" in oil	26 x 37 to 26 x 44	14.50	13.25	10,75	-
White, Paris, English, prime	26 X 46 to 30 X 50	15.00	14.00	11.25	
" " in oil asst'd cans, me : kegs, &c	30 X 52 to 30 X 54	17.26	16.60	13,50	
" Vermontin casks 11/60	34 X 58 to 34 X 60	18.25	17.25	15.00	
Yellow Chrome17 @ 27C	36 x 60 to 40 x 60	20,75	18,75	17.25	
Yellow Chrome. "In oil. 14 @ 16 @ 35c Zinc White, American No. 1, dry. 7c No. 1, in oil 10 "French (Paris). 11c "In oil. 1505 @ 115c	0 x 8 to 10 x 15				
French (Paris)	SIXES.	zat.	2d. 1	3d.	41 b.
			-	-	
Linseed, Raw, in casks and bbis.	6 x 8 to 10 x 15.  11 x 14 to 16 x 54.  18 x 20 to 30 x 50.  18 x 20 to 30 x 50.  26 x 26 to 30 x 50.  27 x 50 to 30 x 50.  28 x 50 to 30 x 50.  29 x 50 to 30 x 50.  29 x 50 to 30 x 50.  20 x 50 to 30 x 50.	\$12.00	\$11.00	\$10.00	8 9.1
" Hotled. " " " 66c & 68c	18 X 22 to 20 X 90	17.25	X5.75	14.00	200.3
Bleached Whale gal. 510	15 X 36 to 24 X 30	19.75	17.25	14.50	
" Sperm 996	26 X 28 to 24 X 36	21.00	18,50	15.75	
Signalsoc	20 X 30 to 20 X 44	23,29	31.35	17.25	
Prime Lard	90 X 52 to 90 X 54	25.75	23, 25	10.25	
No. 1 "	30 X 56 to 34 X 56	27.75	25,00	21.75	
West Virginia86 @ 250	34 X 58 to 34 X 60	29.25	27.75	24.00	
Drilling	36 X 60 to 40 X 60	33.25	362.00	37.75	
Signal	Sizes above 40 x 60-\$10.00	per bo	x ext	ra for	every
Fish Oil, pressed3ac	five inches.	well b	a oba	mand #	or all
Neatsfoot700	An additional to per cent. Glass more than 40 inches	wide.	All sin	tes abo	TO 50
Machinery 408	inches in length, and not ma inches, will be charged in the	king m	ore th	an 8r u	intred
Nestsfoot         58c           Tallow         58c           Machinery         40c           Engine         50c	inches, will be charged in the	e 84 unit	ted inc	hes br	acket
			-	_	-
		- 1	1.3		1.77
OF TO THE AT TOT	DIDGE	Q.		0	



Cuts Round and Flat Iron

SOLE MANUFACTURERS OF



DRILLS, SHEARS AND PUNCHING PRESSES.

For Workers in Iron and Steel, adapted to all trades.

Send for circular and prices.

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THE BUFFALO STAMPING WORKS.





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#### STAMPED & JAPANNED TIN WARE,

Retinned Ware, Plain Pieced Tin Ware, Bathing Apparatus, Toilet Ware, Tin Toys,
Spoons, Flesh Forks, Cake Turners, Coal and Fire Shovels, Pokers, Fry
1'ans, Stone Skillets, Coal Hods, Coal Vases, Water Coolers
and Filters, Harness Oil Cans, Soldering Coppers.
'Iron Clad's and 'Double Rim's Stove Hoards, 'Palace's Coal Vases, "Champion's Ice Cream Freezers, "Novelty" and "Elevated
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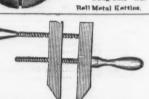
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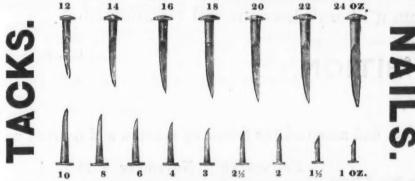
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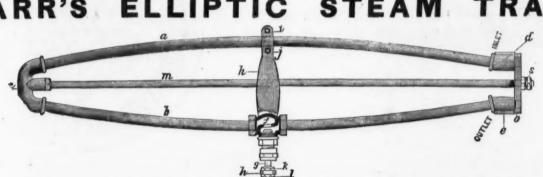
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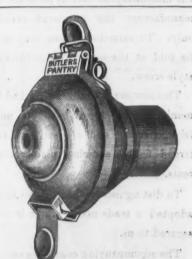
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Product: Iron, Brass and Steel Screws, Tire and Stove Bolts, Rivets. Name and address of Exhibitor: American Screw Company, Providence, R. I.

The undersigned having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for Award, for the following reasons, viz: Being of aquality nearly approaching perfection, showing the highest attainment in this branch of manufacture. G. L. REED. Signature of the Judge.

Approval of Group Judges.

Daniel Steinmetz, Jas. Bain,

Section at Line\_E

G. L. Reed, J. D. Imboden, J. Diffenbach, Day. McHardy.

Chas. Staples,
ord. Francis A. Walker, Chief of the Bureau of Awards. A true copy of the record. Francis A. Walker, Chief of the Given by authority of the United States Centennial Commission. A. T. Goshorn, Director-General.

[L.S.] J. L. CAMPBELL, Secretary. J. R. HAWLEY, President.







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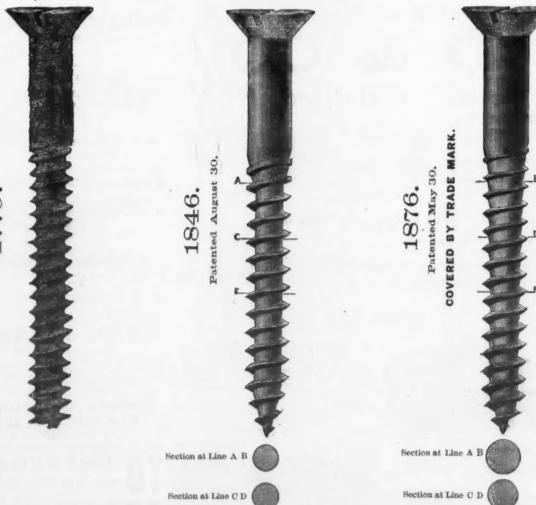
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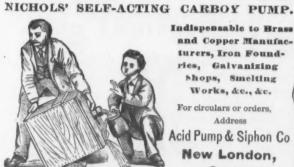


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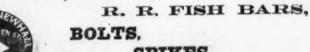
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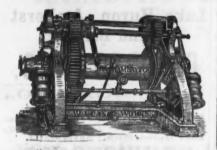
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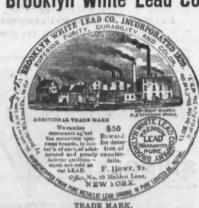
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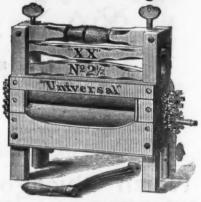
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**	Vrought		**	12 1	n. by	20 76	
11	**	4	4.6	X 5 31	n, by	25 64	
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			Tee	Iron.			
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			Angle	Iron	B.,		
Equal :	Sided, 1x	1 to 19	(KIM	in		*****	
Unequa Square	Root Ar	agios.	to 5X	olex.	Me		
Saan Ir	on, rack	GK3-10					
		For	Na ice ar	ils.	ade.		
ad and	60d 9d		2.75		and	30	*****
	Barre	l.		136 1	n		
% in			6.50	43.6	14		
36 "		******	5.50	136			******
I " .		******	5.00	136			

	76 " 5.50 136 " 1 " 5.00 136 "	3.50
h	1 " 5.00   136 "	9.25
4		
ıĥ.	% in	8.50
		3.25
8	lod 3.00   6d and 7d	
-	Slating.	4.25
%	5d 3.50   3d	
	4d 3.50 2d	4.25
00	Finishing.   136 to 196 in	4.50
39	1 IB 7.60   2 In	4.25
	336 " 6.50 236 "	4.00
	134 " 6.50 234 " and over	3.75
et	Cusing and Box.   bd	3.75
et i	rod to god 3.25 4d	4.00
	8d 3.50 3d	
•		5.50
a		6.25
3	Cut Spikes-All sizes	2.75
	Boat Spikes-All sizes	8.25
8	Each half keg to cents extra.	
%	TERMS.—Note or acceptance at 60 days; or a disco of 2 per cent. for cash, if remitted within 10 days fr	unt
%	date of invoice. An abstement of to cents non	om
8	date of invoice. An abatement of to cents per allowed upon orders of 200 kegs or over.	ROR
31	Miteel.	
21	Savare, Flat and Octagon Tool Steel	
€	% to 2 in	160
ã.	5-16 and 216 to 3 in140 3-16 and 516 to 6 in.	TOC
8	54 and 356 to 4 in15e   5-32 in	. 240
ŝ	Single and Double Shear Nailers-Same as Tool.	
×	Knife, Tup, Die, Mill Pick, Drill-Ordinary sizes	.130
8	Machinery Steel - Pound	-
W	96 to 2 in	016c
4	5-10 and 256 to 3 in 8560 3-16 and 456 to 6 in 1	336c
š	Coast Spring Sheet	1360
¢ 1	Cast Spring Steel. 154 to 3x5-32 to 3-16 in	756C

1 to 4x14 to 1/2 in 61/6c   3/6 to 11/6x5-32 to 3-16 in 81/6c
Agricultural Steels
Solid Cast Steel Plow, 4 to 16 by 3-16 to 36 in 70
"Iron Center Plow," 4 to 16x3-16 to 36 in 8e
Soft Steel Center Plow, 4 to 16x3-16 to 36 in 9c
Landside and Cultivator, C. S., & in. thick
Horse Kake Teeth, tol ength
Finger Bar
Cuttor Bars, C. S 8140
German Spring Steel. 7/4C Cornstalk Cutter beveled to length. 8c
Hoo C S

Hoe, C. S. Sheet Steels. 71/60	ı
German, 10 to 16 g 8c   Common C'st, 17 to 20 g. 10c	ı
Common C'st, 10 to 16 g. 9c   " 17 to 20 g140	I
Rolls and Castings.	1
Furnace, Floor and Straightening Plates 194 @ 20	ł
Housings and Castings not otherwise specified 2140	ı
Spindles and coupling boxes2 @ 2140	ı
Sand Rolls and Pinions, large size	ı
Pipe Mill Castings. small size 3 C	ı
Rolling will Castings under to the	ł
Spur and Bevel wheels, large	ł
Pullers up to 30 inches	ı
over 30 inches314 @ 3146	ı
Engine Castings, light	I
Chilled Rolls	l
6to alm diam store in lone	

small size
Pipe Mill Castings
Pipe Mill Castings. Rolling Mill Castings under 50 lbs.
Spur and Bevel Wheels, large
" small
Pullers up to 30 inches
over 30 inches
Engine Castings, light
Chilled Rolls.
6 to 7 in. diam., 7 to 20 in. long
8 to 15 in. " 8 to 40 in. "
15 to 24 th. 15 to 78 th
24 to 31 in. " 72 to 108 in. "
Heavy Hardware.

0 24 in.	66	15 to	72 in. 108 in.	66 -			******				
97, 185		Heav	v Ha	rdy	WR.	re.		****	4	>8C	
ewis, Oli	ver	& Phil	Sorews, lips, di ordina	660	unt	off	Stan	dard	Li	st.	
ve Bolts	alta.	*******	******				40/8	5%	off i	et	
chine and l t Ends	a sq	lorews	lead B	olta		****	.00&1 .00&1	0 % 0	und i	let let	

								_
20 % net	Washer Nuts and V # B e Strap a Harrow Skein I Cast Iro	s, all ad W Vashe x. N ad T Teet Bolts.	made fr ashers ers in lot uts and Hinges h	and Hex. Nu om new ban in 25 B box s less than o Washers in	l Iron ss, 140 i ne keg s b box	Se w t F to each each ea, re &121/2	n off c. N size, P h s off	net uts 1/60 ex. net net
dia	Single	Trees	Was	on Hardw Yokes and	nre.	Tree	a. m	ude
	from	best s	elected	hickory, and	ironed	com	plete,	in
k5 %				patterns.	Tunne			
5 %	no, r so	eto l	ru Flow	Wrought	, trone	on oh		
15%	No. 2 W	Teste	rn Plow	Single Tree	Imome	- CHCE	, 290	net
net	comp	ete.	rons all	Wrought	, arome	each	900	net
10 %	No. 3 W Irons	all W	rought,	Tree, Iron c	omplet able Fe	0, T-		
net	rule					each	L 600 1	net
1.5 %	No. 4 W	agon all W	Single T	ree, Ironed c Improved Ex	omplet	0,	, ,,,,	
30 %	rivete	d on	one sid	e acts as a w	ear ire	TR		
60 %	for w	neel t	o rub ag	minat		.cach	. son 1	net
net	Wron	ght e	reept Er	complete, l	rons a	III		
55%	Souther	n Plo	w Doub	le Tree, Iron	ed cor	oach	, 6oe	net
5%	plete,	Iron	all Wro	ught		each		net
10 %	Wagon	Box i	Strap Bo	lta-		, route	9 300	ne-
10 %		F	or order	of 100 Set, 4	Stro S d	Ha.		
10%	10 in.	long l	by 7-16 at	Screw End,	₩ 88t ¢	of 8 bo	itn	450
10 %	12 in.	66	36	s of 100 Set, 4 Screw End,	66	8	66	ske
25 %	mo in.	03	9-16	69	64	8	64	6se
	12 in.	**	9-16	64	66	8	88	700
16 % 16 %	14 ln.	46	9-16	06	96	8	16	Soc .
16 %	10 in.	66	96	66	60	8	18	Soc
36 K	x2 in.	46	56	64	86	8	88	Soc .
168	14 in.	**	96	66	14	8	10	ooc
168	16 in.	66	56	46	**	8 1	16	00.1
SKELL F F F F	18 in.	44	56	66.	0.0	8 1	10	1.10
net	20 in.	46	66	44.	66	8 1	18	1.20
net	se ₩ set length			itional inch	over 1	inet	ies.	All
net		CAR - I						

	18 in. " % " 8 " I.I.
	20 in. " 64 " " 8 " . 1.3
	50 % set for each additional inch over 14 inches. Al
	lengths made.
	Chalma Camalata - Matarata
	Chains. Straight or Twist Link. Reiter & Morton's List.
	5-16
	96
	7-16
	Net cash, 30 days.
	Horse Shoes, Etc.—In 100 keg lots.
	Juniata Horse Shees ner kee to s
	Juniata Horse Sheesper keg, \$3.5
	Steel Tee Calks novel/oil
	Thistlewood & Co 's Self-Sharpening Horse
	"Roadster" pattern
	Shoesper keg, \$5.2 Thistlewood & Co.'s Self-Sharpening Snow
	Shoes " 5.50
	Toe Calksper lb. 80
	White and Red Lead.
1	Assorted Kegs (all sizes)8c
	25 B Tin Pails, 100 B Cases
	Red Lead
1	Red Leadin kegs, 6%c; in barrels, 6%c
ı	Orange Mineral. " 9560; " 9 0 Litharge " 6540; " 6540 Dry White Lead. " 7560; " 7540
	Litharge 64c 64c 64c 64c 64c 74c 74c 74c 74c 74c 74c
	Dry White Lead " 7160; " 7140
	white Lead in Oil in lots of less than too lbs We ad
1	ditional.
1	Terms: Note at sixty days, or if paid within 15 days
	from date of invoice, a discount of 134 per cent. will
	be allowed, but not otherwise.
	Window Glass.

Single Stren	gth.			
Size.	AA.	A.	В.	C.
X 8 to 10 X 15.  X 14 to 16 X 24.  X 22 to 20 X 50.  X 36 to 24 X 30.  X 36 to 24 X 36.  X 36 to 26 X 44.  X 46 to 36 X 56.  X 52 to 20 X 54.  X 52 to 30 X 54.  X 54 to 34 X 50.  X 58 to 34 X 50.  X 58 to 34 X 50.	\$7.50 8.50 10.75 12.25 13.00 14.50 15.00	\$6.75 7.75 9.75 10.75 11.50 13.25 14.00	\$6,25 7.25 8.75 9.00 9.75 10.75 11.25	85.7 6.4 7-7
Double Strength.  x 8 to 10 x 15.  x 14 to 16 x 24.  x 24 to 20 x 50.  x 26 to 24 x 30.  x 26 to 24 x 30.  x 26 to 24 x 56.  x 26 to 26 x 44.  x 46 to 20 x 50.  x 52 to 30 x 54.  x 56 to 34 x 56.  x 58 to 34 x 56.  x 58 to 34 x 56.  x 58 to 34 x 56.	12.00 13.75 17.25 19.75 21.00 23.25 24.00 25.75 27.75 29.25	11.00 12.50 15.75 17.25 18.50 21.25 22.50 23.25 23.00 27.75	10.00 11.75 14.00 14.50 15.75 17.25 18.00 19.25 21.75 24.00 27.75	10.40

	An additional 10 glass more than 40 inches in length and	inches wide. All	sizes above sa
ı	inches, will be charg	ed in the 84 united	inches bracket.

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10x14, IC, C	oke Plates			6 0
14x20, IC.	46		*********	6 OK
10x20, TC.	41			9.54
Yoursel yes	****	********	*** *******	
HIGGE TIN				
Large rigs	190	Bars.		216
Amali	204	1 1		
Zinc Sheet	800 to 1000 m	Cantra		61/4
Lace Sheet	I DOO TO TOOK IS	· Caoses.		024
roose speer	A	********	**********	***** BMC
Slab Zinc or	Spelter		**********	6 C
CopperBo	ottoms			25c
Sheathing.	************			280
Plantshed	******* ****	******		290
L'IMITAMOO	oiler lengths		**********	OF C
,D4	oner tengens			aoc
	***********			
Bolt	********		****** ****	24c
Braziere' 8 30x60, 6 to 7 30x60, 8 to 9	hoots			
30x60, 6 to 7	Da W To 80	e ! 30x60.	10 to 12 fbs	10 to 246 c
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Braziers or	Spelter Solde	P		28 60 250
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Antimony		********	**********	*** 10
RUPPIE WIGH	mi-r. n. a	O. B		
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		mooth.	Smooth	Smooth
	Common.	Com.	Charcoal.	Juniata
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27 66 20.,	9.90C	4.106	0 6	2340
27	. 3.20C	4°800	4% C	7 Se
Jalvanized	Irondis	40. %		
No. 16 to 20	12e	No. 27 .		15c
21 to 24		28	**********	160
OK & OK	140		***********	
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CHASIG IFO	1	MO. 1 B	tained	
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and -		Lead P	ne in full	colle 6
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F	G	Tight L	be, anen	7686 0756
Bar	6 C	sheet 1	wead	
Wire-Brigh				dis 50 9

### Hyatt's Patent Slot Bolt.



For Fastening Window Screens, Cabinet Ware, &c

We call the attention of the trade to these Wrought Brass and Iron Bolts as being the best and cheapest in the market. Sizes, two inches and upward, both plain and neck bolts. Two screws (as shown in the cut) fasten the bolt and bed-plate to the wood; no others are required, thus effecting a great saving in screws and producing a strong, handsome and cheap Bolt. Price list furnished on application.

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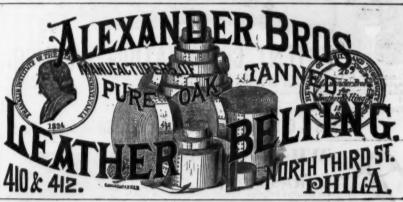
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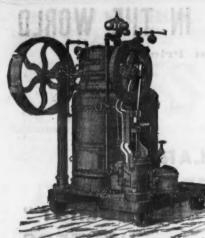
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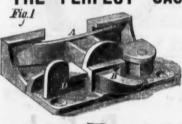


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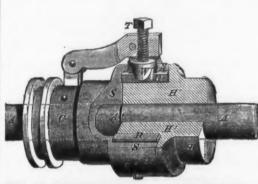
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Capable of controlling with the utmost accuracy the motion of a watchman or patrolman as the time reaches different stations of his beat. The instrument is complete in fuself, portable and as reliate as the best lever watch. It requires no fixture or wires communicating from room to room, as is the see with the ordinary watch clocks. A small, inexpensive stationary key is alone required at each ation. The instrument will, in all cases, be warranted perfect and satisfactory.

NB.—The suit against imbacuser & Co., of New York, was decided my prayor, June 10, 1874. Nother suit has been decided against them and a fine assessed Nov. 11, 1876, for selling contrary to the other suit has been decided against them and a fine assessed Nov. 12, 1876, for selling contrary to the other suit has been decided against them and a fine assessed Nov. 12, 1876, for selling contrary to the other suit has been decided against them.

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The rapid increase in the use of Nickel-Plati owing to the introduction of the Weston Mach and the very low price of nickel material, enab-us to give greatly reduced estimates for compli-outfits.

Stove Work, giving a pure white deposit on plain or mat surfaces.
Outfits complete, with Dynamo-Electric Machine Tanks, Anodes, Solution, &c., &c., &zso.
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We call attention to infringements of the Weston Machine, in which Automatic Switches are used to prevent change of current. The Weston Co. are owners by grant or purchase of all forms of Automatic Switches for Flating Machines. The sdoption of these machines will certainly lead to gress loss to parties purchasing or using them.

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١	BOSTON.
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	Anvils.—" Eagle American"
	Anvils,—"Eagle American". # 5 cc. dis 20 % Apple Parers,—Reading. # dos 84. co Lightning. # dos 65. Reading "28" # dos 7. co Alken" # Tools # dis 40ct. 52
	Apple Parers. Reading. \$\fo\$ 4.00  \$4.00 \text{ \$1.00 \text{ \$1.
	Anvil & Vise.—
	No. 1, 84.50; 2, 3.75; 3, 3.00 eachdis 25 \$
1	L'Hommedieu's Ship Augersdis 15 %
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1	Shepardson's Double-Cut Bittsdis 45 %
ı	Stearn's Extension Hollow Augersper doz \$30.00
	Axes.—Blue Jacketsper doz 8.00
	Red Crossper dog 7.50
	Dowse "Boys'dis 15 %
	Oak Extra, 31 in., No. A
	" 34 in., No. A
į	" 34 in., No. B @ dom 2.00
	Axle Clipsdis 60 %
1	"Handled
	Cast Angle (for Anti-Friction Hangers)per ft. 30
	Wrought " per ft, 16, 3140; 16, 40; 16, 50
1	Bells.—Connel's Crank Gongdis 40210 %
	Japanned M. B. & D., reduced list, 1878dis 25 %
	Blind Fasts.—Lock Fasts & C sets \$4.00
1	Veazie Fasts
١	Blind Hinges.—Mall. Hook, a holes C sets 5.00
١	Brad Awl Handles.—
	Bolts.—Norway Iron Carriagedis 70&10 \$
ı	Common "dis 25&10 %
	Boring Machines.—Snell Uprighteach, \$3.25
	" Augers # set 1.75
	Bara Boes Ball.  Cast Angle (for Anti-Friction Hangers). per ft. 96. 3460; % 4560 Wought per ft. 96. 3460; % 1576. dis 25 Blind Frasts.—Lock Fasts. \$100. dis 25 Blind Frasts.—Wought per ft. 96. 3460 Wought per ft. 96.
	Bracket Saws Roger's each \$2.25
	Bracket Saws, extra quality, to No. 5 gro \$0.85
1	Lesterdis 25 %
	Brackets. each, \$2.25
	H. B. & M. Flower Pot
	Bread Kneader.—Stanyandis 108:10 %
	"Holly," all iron each, \$2.35 Brackeff, Flower Pot. dis 50.210 \$ Bronzed Sheif, M. B. & D. list. dis 108.10 \$ Bread K neader. —Stanyan dis 50.210 \$ \$0.4 capacity 3 lowes \$70.00 \$ \$0.5 \$70.00
	No. 6 " 8 " d doz 33.00
	Butts Union Fast Joint
	No. 5  Bronze Hardware, Norwalk Lock Co.dis coaras Butts, Union Fast Joint. dis 50x 10.5  Loose dis 75&5  Japanued Acorn. dis 75&5  Japanued Acorn. dis 75&5  Gis 76&5  Boston Phish. dis 76&10  Centenniai Spring. dis 9.
	" Silvered "dis 7525 \$
	Beston Philah
	Carriage Jacks,-Climax doz \$15.00
	CartridgesU. S. Cartridge Codis 60 %
	Cards.—Sargent Horse and Currydis 333600 % Cotton
	Wool
	ChainTraces 616, 10, 4, streight P pair 450
	7, 12, 2, 4 P pair 500
	Coll 3-16. W To 100.  " 54. W B 8c. " 516. W To 70
	516 9 B 70 516 9 B 70 96 B 70 60
•	7-10 15 594C
	Chalk,—White, Carpenter's. # gross 550
	Red, Carpenter's # gross 750 Blue, # gross 900
	Ch.lk.—White, Carpenter's. # 8 596 Red, Carpenter's. # gross 596 Blue. Hart, Bliven & Mead, Framing. dis 50 Underhill, Framing. dis 50 Underhill, Framing. dis 55 Cluck's Shank, Framing. dis 55 Cluck's Shank, Framing. dis 55
	Buck's Shank, Framingdis 25 %
	Sucr's snam, Framing
	Coul Hods.—Ironclad.—Galvanizeddis 25 %
	Tapanied
	CordageManila, usual trade dis 3 130
	Cow Tiesdis 45 %
	No. 30, 3 ft. No. 5 Wire, with toggle of dox \$5.50 No. 35, 3 ft. " " with snap of dox 3.80
	No. 40, 316 ft. " with toggle P don 3.90
	No. 50, 4 ft. No. 4 " with toggle # doz 4.50
	No. 60, 416 ft. " 3 " with toggle # doz 5.38
١	Title
	Cutlery.—Pocket, American Shear Co.'sdis 331/2010
	Butcher Knives, "Woods," Lap Bolster,
	Square Handle dis 33% Steak Knives dis 33% Lap Bolster, Oval Handle dis 25%
	Stickingdis 331/4 5
	Butcher, Common Round Handle, "Woods"dis 25 \$
	Shoe Knives, "Woods"dis 10 %
١	Dog Collarsdis 20 5
1	Door Springs Torrey's Rod # dos \$1.00
	Eccentric Steel Coll Spring, No. 1
	Door Steps.—"Thurston's"dis 50 5
	Square sande  Steak Kilves.  Lap Bolster, Oval Handle  dis 255  Steaking.  dis 255  Steaking.  dis 255  Steaking.  dis 255  Butcher, Common Round Handle, "Woods" dis 255  Butcher, Common Round Handle, "Woods" dis 255  Bolster, Common Round Handle, "Woods" dis 255  Bolster, Cook's  Dog Collars  Dog Collars  Dog Collars  Dog Collars  Dog Torey's Rod woods 155  Dog Collars  Eccontric Steel Coll Spring, No. 1 woods 257  Dog Torey's Rod woods 255  Dog Collars  Eccontric Steel Coll Spring, No. 1 woods 257  Dog Torey in Robs. "Thurston's" dis 255  Drawer Knobs. "Thurston's" dis 255  Drills.—Morse Bitt Stock  dis 255  Morse Straight Shank  Emery.—Wellington Mills  P B 160  Easmelled Ware.  Standard Mrg. Co. Kettles.
	Emery.—Wellington Milis
	Emery. — Wellington Mills
	Standard Mfg. Co. Kettlesdis 60 \$
	Felioe Plates Wrought. W & Sc
۱	American File Codis 30 \$
1	Fluting Machines
	Fluting Machines. # doz #35.7 Knox, with 6 inch rolls. # doz #36.0 Geneva. # doz 13.50
	W. C. & Co., Manure, reduced listdis 15810 S
	Genuine German, No. 126, 1-32 to 8-32, \$1.00
1	Forks.  W. C. & Co., Manure, reduced list
1	Combination Class Cutter and Knife Sharpener. Wdos \$1.21 Grub Hoes.—K. P. & Co. 3 No. 2. Signs 400 \$1.21
	Grub Hoes.—K. P. & Co.'s No. 2 # doz #1.25
	Hammers,-Maydole'sdis 15 5
	Hammers.         May dole's         dis 15 f           Hammond's.         dis 20 f           Dowse's Steel, A. E.         # don \$4.00           M. B. & D.         dis 25 f
١	Hangers & Rollers Anti-Friction dis for
١	
ı	Commence
ı	Hand Screws
	Hatchets.—Dis. 15 % C. F. Downe, Combination
	Hay Knives.—Lightning \$\psi\$ doz \psi 8.00
	Providence Platedis 60&10 \$
J	wrought solve Hook
J	Ploes - W. C. & Co. s Produced Harr
	Hooks and Staples.—Brewers'dis 50 \$
J	Hooks and Staples.—Brewors'
I	Hooks and Staples - Brewers' dis 12 Hooks and Staples - Brewers' dis 52 Horse Nails. No. 6 7 8 9 National Finished 23 41 20 19 dis 15 Putnam Pointed 23 41 20 19 mst Horge Nails - Bridgewater dis 24 dis 25
1	Hooks and Staples - Brewers' dis 12 Hooks and Staples - Brewers' dis 15 Horse Nails. No. 6 7 8 9 National Finished 23 .41 20 19 dis 15 Putnam Pointed 23 .41 20 19 met Horse Nails Bridgewater dis 25 No. 6, 23; No. 7, 21; No. 8, 20; No. 9, 19 Knobs Norwalk'
J	Hooks and Staples - Brewers' dis 12 to Hooks and Staples - Brewers' dis 9 to Horse Nails. No. 6 7 \$ 9 National Finished 23 .21 30 19 dis 15 Putnam Pointed 23 .21 30 19 mst Horse Nails Bridgewater No. 6, 23; No. 7, 21; No. 8, 20; No. 9, 19 Knobs Norwalk' kineral Porcelain, Japanned Mrs 4 dos 80.75
I	Hooks and Staples - Brewers'   dis 12210     Hooks and Staples - Brewers'   dis 95     Horse Nails - No. 6 7   8 9     National Finished   23   21   20   19   dis 15     Putnam Pointed   23   21   20   19   ngt     Horse Nails - Bridgewater   dis 25     No. 6, 23   No. 7, 21   No. 8, 20   No. 9, 19     Hobs - Norwalk   dis 25     Hooks - Norwalk   dis 25     For Rose Nickel Mtg   doz 2,50     For Rose Nickel Mtg   doz 2,50
	Hooks and Staples - Brewers'   dis of Starter Nation   Missing Hooks and Staples - Brewers'   dis of Starter National Finished   3, 31   30   19   dis 15, 5   Tunama finished   3, 31   30   19   dis 15, 5   Tunama finished   3, 31   30   19   dis 15, 5   Tunama finished   3, 31   30   19   dis 15, 5   No. 6, 20   No. 7, 21   No. 8, 22   No. 9, 19   dis 20, 5   No. 9, 19   dos 80, 15   No. 9, 19   dos 80, 15   No. 9, 19   dos 80, 15   dos 80, 1
	Hoes.—W. C. & Co's (reduced us)
	Hinges Strap and T (new list).   dis 60&70 \$ Providence Plate.   # \$ 40 Wrought Seaw Hook.   # \$ 40 Wrought Seaw Hook.   # \$ 40 Hooks and Staples Brewors'   dis 10&10 Hooks and Staples Brewors'   dis 9 \$ Hooks and Staples Brewors'   dis 9 \$ Hooks and Staples Brewors'   dis 9 \$ Hooks and Staples Brewors'   dis 15 \$ Hooks and Staples Brewors'   dis 15 \$ Putnam Pointed.   23 .21 .20 .10 .mst Horse Nails Bridgewater   dis 27 \$ No. 5, 23   No. 7, 21   No. 8, 20   No. 9, 19 .mst Horse Nails Bridgewater   dis 27 \$ No. 5, 23   No. 7, 21   No. 8, 20   No. 9, 19 .mst Horse No. 9, 10   No. 9,
	Hairond, Oil, No. 45
	Manifold Oil and Candle, No. 25
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Pulley B	Inion Man	nfactor	ine Co	d	la 354
Iron Cist	ern				dis ss
Copper	ner spout		*********		dis :
Rivets.	in to m par	-		*******	die
Copper			*********	*******	Als 25
Rules8	tanley	rrey's.	Boxx	wood a	willing.
m - 11	64		Ivor	y, dis	506 10 %
Laundry	Commoi	A	*********	***********	0 ptc 6
THUTOL B	reese				W 10 6G
Mrs. Pott	leese. se, "Potts" s' Large Po	lishing	Nickele	d W down	06 \$5.50
Hopkins	& Dickinso	n's	ninson's	new list.	dis 40 %
Sandpap	er.—Baede	r& Adı	amson		dia 15 %
Sash We	ightsPa	tent Ey	0		B 146
SawsH	and Saws, l	Disston	*#		dia 20 %
Cross-Cut	Saws.	Manak	****		a 2085 2
W. M. ac t	Champic	M 61	NO. I		foot see
Disston's	Gt. Americ	38.W *1	*******		foot 44c
Boynton'	s Lightning	. " 9			foot 45e
Saw Bla	des.—Dissi	on	********	W de	dia ao «
W. M. &	Griffith En	ri.	********	di	8 20/K5 %
Enterpris Mrs. Fott Sash Lee Hopkins Sandpap M. B. & D Sash We Saws.—H Wheeler Cross-Cut's W. M. & C Diston's Boynton' Saw Sett Sw. Bla W. M. & C Wela Scales.—H Howe Screws.—	Fairbanks.  Aiken's Flat Head  Round-Hea	. N	*********	P	on Lco
Howe	DIFDMMKS.	*******			dis 25 %
Screws	Aiken's Fl	at-Hoa	d Iron		dis 60 %
44	Dound Was	Brass.	*********	*********	dis 45 %
	round-Hen	Iron .		*********	dis 45 \$
Grilley	66	Nicks	l-plated	Pianodi	8 55At 5 %
Shaves.	Kimball's			Piano. di Common Pi	nch 714e
Shears.	American	Shear (	30	******	dia 25 %
ShotTa	tham's		********		. P B 6c
O. Ames,	other bran	ds	*********		in 3214 %
M, B, & D	dirminghar	n Patte		d	is 37% %
Shaves. Watrous Shears. Shot.—Ta Shot.—Ta Shovels. O. Ames. M. B. & D. Oxford. J. Snow Sh Shates.— Speens.— Iritannii Rogers' Stock an Tacks.— Pitzafield Traps.— Coneida, I Blake's. Tree Scr No. 2. No. 2. Vises.—S Simpson	ovelsM	Meable	tips		los Scoo
Aome	Union	*******	********	********	dia 25 %
Spoons.	Tinned Iro	m	********		dis 15 %
Rogers'	No. 1			di	8 4045 %
Tacks.	A. Field & 8	on's	********	die	S TORES
Pittsfield	molde Com		********	di	50£10 %
Oneida, I	mitation, E	I. & N.		dis	18 3316 %
Tree Ser	aperaNo	D. T.	*********	dlie	soltso %
No. 2			*********	P C	los 3.0
VinesSc	lid Box, Bi	acksm	th's		10E 4.0
Simpson Howard	olid Box, Bi s Adjustab Vise Co o., Solid Bi	le	********	di	2 of Apr
P. L. & C	o., Solid Bl	ackami	tha', nev	v list	dia 10 %
Browne	Flexible I	Rubber	*********		dis so %
2, % in	DOXES; NO	3. 36	in., 200.	P yard, 1	DO. 350.
Valentin Black W	e's Felt Mor alnut Sprin	ulding.	ther State	ne 30 a	skia 30 %
Window	Awning.		on make de		me #7.00
Window	Springs.		or winds	W ; \$1.00	AME 25 %
Babcock	Strips.  Strips.  Flexible Is boxes; No. 140. No. 140. More alnut Springs.  Springs.  Springs.	*******			30.24
Wire Go	ods.—Gate	Hook	and Ry	es, Ac.die	70810 %
Girard M	itg. Co	00'8	*********	die	dia 60 %
Wringer	M.—Universil, No. 246 No. 10 No. 2 No. 2 No. 22	sal, No.	2	P d	OR 966 00
Novelty,	No. 10		*********	9 de	OD.00
- "	No. 22	*******	*** ******	Ø de	
a.account				# de	75.00
1	No. B No. CC Set Tub, E.			9 9	of Tole
Eureka.			*********	y d	08 54.0
Zinc	n. Cooley A	Co	Iona Pro		. W 3 60
dis 40 %.	n, Cooley & Special rat	e for K	xport.	es, Forks	, &v.
		-	27	_	
	Q+ 1	n 14 -4	- T		
	St. Loui				11114
Tin Bin	aled Weskly	by Ma	uers. R. S	tellens & f	16.)
IU. 10x14, E	lest Char	8 0:501	DX. 191cs	17, B. Ch	Nr. 5 85.
1.A10 K14,	44 **	8.00	DA A 184	x17	10 50

i	
	St. Louis Metal Market.
	(Corrected Weskly by Mesers. R. Sellen & (b.)
	Tin Plate.
	IC. 12x12,
	[C, 14x30, " 9°50 [X, 30x30] 31. [X, 14x30, " 31. [X X, 14x30] 31. [X X, 14x3
	C, 10x14, Best Char. 3 959   DX, 135x217, B, Char. 5 8 1X, 10x14,   10x, 10x12,   10
	IC, 14x14 13-50 IC, 10x14, Hest Coke 5.
	DC, 121/217, " . #90   BL U D. Ref g June
	No. 16 to 30
	No. 25
	DC, 13 cx17.  Sheet Iren.  Com a. surin. smith.  No. 16 to 30.  See See See See See  No. 30.  See See See See  No. 30.  See See See See  No. 30.  See See See See  See See See  See See
	Parce of the to belo. For less than Bdis. add 1c. v Branca Plantaned I from No. 4 to 37, A qualify
	For less than Bdle. add ic. per lb.
	Inviets or lat quelty. Discount for full have to
	Block Tin. 21c do. Small 3.45 Banca, Large Figs. 21c do. Small 3.45 Btratts, Large Figs. 17c Eng. Ref'd, Large Fig. 17c
ı	Selder. Extra in Bars
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١	No. 1
I	Copper. Braxler's, 50x50, 14 to 100 lbs. Sheets
١	Coppers 10, 11 & 10 100 lbs. Sheets 10, 11 & 12 lbs., 16 11 & 12 lbs., 17 lbs., 18 l
I	Tinned, 14x4, 14 and 16 oz.  Planished, 14x48, 14 and 16 oz.  Boiler Sizes. 14 and 16 oz.  Gutter Copper, 20 and 24x74, 10, 11 and 12 5, absets, 22  Reservoir Copper, 18x60 and 18x60  Bar Copper, Square and Round, 3, to 15, 1nch.  Copper Bottoms.
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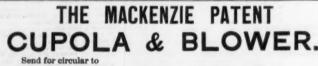
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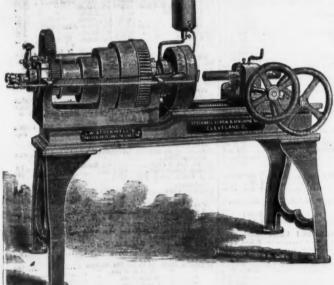


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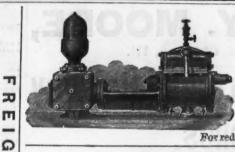
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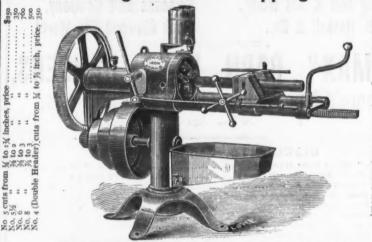
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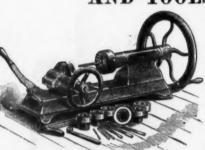


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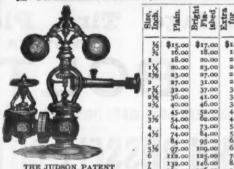
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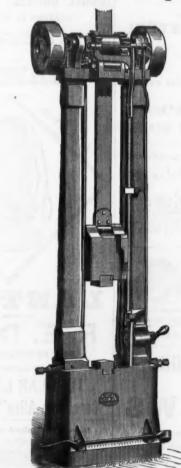
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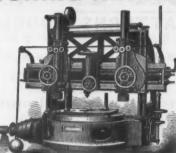
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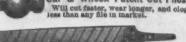
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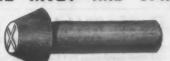
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